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PUBLIC INVESTMENT IN POSTWAR JAPAN

By Chotaro Takahashi

Professor, The Institute of Economic Research

I. *Features of Investment Fluctuations*

The postwar economy of Japan may be characterized by two seemingly contradictory features, namely, by certain persistent tendencies and by incessant changes. Of these phenomena there are trends as the result of inertia from the prewar days and those which are phenomena resulting from the postwar reconstruction process. For example, as to the rate of increase of gross national product, the prewar tempo of growth is estimated to have been about 4% annually and after the war it shows a rate of about 8%. Thus, it might be asked whether this is merely a temporary phenomenon accompanying the reconstruction process. However, the reconstruction process after the war is not a process of returning back to past conditions, but rather a process of regrouping or reshuffling the economic conditions. This is particularly true as to the regrouping of capital stock, changes in the structure of capital is what has been supporting the features of postwar economy. Furthermore, this fact is related to the essence of capital, the significance of capital stock lies, quite different from other factors of production, in its heterogeneity. Heterogeneity indicates not simply the differences in physical property but rather the specific purposes for which the capital is used, that is the functionally differentiated structural pattern. Therefore, regrouping combinations of capital stock cannot but have profound effects in the economy.

As to growth of capital, that is, investment process, economic theories pay particular attention to the amount and rate of change in investment. However, it is not appropriate to disregard the difference in functions classified by uses. One way of classification is to divide domestic investment into construction, equipment and inventories, and then have overseas investment. Another way is to classify investment as either autonomous investment or induced investment. It is for convenience that the concept of capital with a variety of specific purposes is treated as if it were homogeneous.

The classification of domestic investment into construction, equipment and inventories, does not reveal satisfactorily the relationship of credit circulations between changes of fixed capital, operating capital and liquid capital in individual firms which Keynes once tried to show inh is "Treatise on Money" (Book VI, the Rate of Investment and its Change). However, as to investment fluctuations a sharp rise or fall in inventories obviously shows failures in investment decisions which firms made in anticipation of future demand conditions and in general the demand and supply of inventories are not always equal but rather imbalanced. As to construction and equipment, the increase in fixed capital may be seen as a process of increasing future productivity. However it is not easy to change investment decision in fixed capital later, adjustment processes will be carried out only through changes in the depreciation rate. Furthermore, constructions of housing and welfare facilities have no direct effect upon productivity and this type of construction has increased in the postwar period, its character differs greatly from factory construction.

Another theoretical classification of investment is between autonomous investment and induced investment. Almost all the investment functions contained in recent theories of economic fluctuations use this two-type classification. Autonomous investment is independent from any kind of income type (income level, distribution or change) and it is important for its multiplier effect. On the other hand, induced investment is those which will be induced by changes in some sort of income type. It is based on the acceleration principle. However, this classification, though quite clear in concept by strict dichotomy, is not so clear as to the modus operandi and there are even some cases where this classification can not be made in practice. Therefore the modus operandi of independent investment can be specified only by giving examples. For example. Hicks specified autonomous investment as follows. (L. R. Hicks, *A Coutribution to the Theory of the Trade Cycle,* 1950, p. 59) "Public investment, investment which occurs in direct response to inventions, and much of the 'long-range' investment (as Mr. Harrod calls it) which is only expected to pay for itself over a long period, all of these can be regarded as *autonomous investment* for our purposes." The content of public investment is ambiguous as will be seen later. And it is also questionable to regard all government investment as autonomous investment. Investment which occurs in direct response to invention is called as innovation, but there is this kind of investment among government investments as well as private investments. Further long-range investment which is only expected to pay for itself over a long period not only earns revenue over a long period but also its investment period is distributed over a long-range. Thus, many public utility works such as roads, transportation, communication and electric power come under this category. Public investment includes, in addition to public works such as roads and harbors, various government-operated enterprises. However, the range of government-operated enterprises differs according to countries and it is hard to draw line between public enterprises and public works. But, viewed from points of function rather than path of fluctuation, autonomous investment is defined to consist mainly of innovating business equipment, construction, transportation, communication, electric power, water supply, and other public works, together with government-operated enterprises. Accordingly, when fluctuation paths of public and private investment are examined, it shall be borne in mind that the private investment includes what can be regarded as autonomous investment.

Further, Harrod thought that any autonomous investment could be regarded as induced investment when a growing economy was observed over a long period, thus paying attention only to induced investment based on the acceleration principle. However, this led to his neglecting any new departure as a mutation and to his failure to recognize the important result which will follow the introduction of independent investment. What is borne in mind is, as Hicks said, "it is evident that in the real world autonomous investment does not expand steadily. It is itself liable to develop 'humps' of the same sort as those which characterize induced investment, and for much the same reasons. Though it is possible (just as it is in the case of induced investment) for these humps to add up to a steady progress, there is not much reason in practice why they should do so. The best that is in fact likely to happen is that autonomous investment should have a clear trend rate of expansion, with fairly considerable oscillatons about its trend." (*op. cit.*, p. 63)

Fluctuations in the economy are mainly due to fluctuations of investment, and autonomous investment will bring about not only a change in the quantity of capital but also a regrouping of combination of capital. And regrouping is based on the character of complementarity of capital resources. (L. M. Lachmann, *Capital and its Structure*, 1956.) The entrepreneur is constantly regrouping the combination of capital and this process of change is the primary cause of economic fluctuations.

II. *Content and Operation of Public Investment*

In order to see patterns of investment fluctuation in the process of postwar reconstruction, let us examine first the proportion of private gross investment in gross national expenditure (Table 1). It shows that the ratios increased remarkably while inflation advanced from 1946 to 1948, in 1949 decreased with the implementation of the Dodge-line policy, and again rose sharply after the Korean conflict up to 1951 when the rate of investment was highest.

Even during the years of 1952 and 1953, which were called the consumption boom period, investment rates showed rather high figures, however, a sharp drop in the investment level from 1951 to 1952 was due to a notable decrease in inventories. It shows that the deflationary policy in 1954 was very effective in restraining both construction and inventory. One thing that should be noted is that what here called private capital formation, particularly equipment investment, includes government indirect investment, that is, loans through governmental banks. Therefore it should be recognized that the fluctuation of postwar private investment reflects not only the behavior of private firms but also the result of fiscal policy. Thus, during the period of 1950 to 1955, except the year 1954 when there was taken deflationary policy, equipment had been increasing because of the effect of the policy.

Table 1 Fluctuations in Private Investment

(in billions of yen)

Fiscal Year	Gross National Expenditure (A)	Private Investment (B)	B/A
1946	474.0	75.7	*16.0*
1947	1,308.7	199.1	*15.2*
1948	2,666.1	494.2	*18.5*
1949	3,375.2	532.0	*15.8*
1959	3,970.8	798.6	*20.1*

Source: Economic Council Board, " Nihonkeizai to Kokuminshotoku " (Japanese Economy and National Income), 1954.

1950	3,946.7	818.	*20.7*
1951	5,444.2	1,252.1	*23.0*
1952	6,118.0	1,204.0	*19.7*
1953	7,084.8	1,335.2	*18.8*
1954	7,461.8	1,159.5	*15.5*
1955	8,229.8	1,376.4	*16.7*

Source: Economic Planning Agency, "Monthly Report on Natioal Income" No. 85, 1957.

In economic theory, the study of the investment function to explain how investment will change has not yet reached a satisfactory state. Many economic models are trying to trace changes in investment by using the acceleration principle. This principe holds that the investment level depends upon the increase in income. However, what can be explained by this principle is only private inventory investment. Actually in 1949, 1952 and 1954 when the rate of income increase was rather slow, inventory investment decreased accordingly. However, equipment investment which decreased following the reduction in fiscal loans and investment under the deflationary policy in 1954, has been increasing steadily in spite of the slowdown in the rate of income increase. This can be explained only by taking into consideration the functions of public investment, particularly of its indirect investment through governmental banks.

At this point it is well to examine the content of what is called public investment. Investment carried out by the government should be divided into direct and indirect investments. Direct investment consists mainly of investment into government-managed enterprises and public works. And public works include the formation of so called social overhead capital such as roads, rivers, and the like. But the bulk of indirect investment consists of loans through governmental banks, which have played an important role in supplying loanable funds to the private sector for the postwar reconstruction. Public works were once emphasized as anti-depression measures during the world-wide great depression and study of its operation has led to formulation of the multiplier theory. Today, it is not only important as merely short term policy but also developments of road, transportation and communication networks are given great attention as source of effective demand over the long period particularly in developing backward countries. The economic function of public works is very important in this sense.

On the other hand indirect investment of the government takes place in the form of credit extending to the private sector and this is a new measure which appeared to meet difficult situation on the part of the private sector in supplying long-term funds. The effects of this on private capital formation are tremendous. As explained above, it is included in the estimate of private investment, amounting to about 15% of total private investment (12.8% in 1952, 14.2% in 1953, 15.1% in 1954 and 11.5% in 1955). Furthermore, as will be pointed out later, it has become the main source of funds to important industries, therefore, many of the changes in postwar industrial structure have been due to its operation.

Direct investment of the government recently accounts for about one third of the total investment. Accordingly, investment, either direct or indirect, carried out by the government amounts to almost one half of total domestic investment. We cannot, therefore, talk about the postwar economy, neglecting the operation of public investment. The following figures show the proportion of government direct investment and changes in its level. [Table 2]

The direct investment fluctuates each year as it is subject to political influences. From 1946 to 1949 it amounted to about 30%—40% of total investment, after 1950 it decreased temporarily as private investment was activated by the boom, and after 1953 it again increased. Under the deflationary policy of 1954, levels of investment, both public and private, sharply decreased, however it should be noticed that government direct investment moved almost in the opposite direction of private investment, for example, it decreased in 1950 and increased in 1952. It is assumed that this had a considerable effect on the adjustment of business fluctuations.

The shift in direction of private investment financed by governmental banks deserves attention. Its main role is to supply funds for equipment to important

Table 2 Fluctuations in Government and Private Investment (in billions of yen)

Fiscal Year	Gross Capital Formation			Ratio Over the Previous Year			Proportion	
	Private Gross Capital Formation	Government Gross Capital Formation	Domestic Gross Capital Formation	Private Gross Capital Formation	Government Gross Capital Formation	Domestic Gross Capital Formation	Private	Government
1946	75.7	29.7	105.4	—	—	—	*71.8*	*28.2*
1947	199.1	146.1	345.2	263.0	491.9	327.5	*57.7*	*42.3*
1948	494.2	258.0	752.2	248.2	176.6	217.9	*65.7*	*34.3*
1949	532.0	298.6	830.6	107.6	115.7	110.4	*64.1*	*35.9*
1950	798.6	189.1	987.7	150.1	63.3	118.9	*80.9*	*19.1*

Source: Economic Council Board, "Nihonkeizai to Kokuminshotoku" (Japanese Economy and National Income).

1950	818.1	189.2	1,007.3	—	—	—	*81.2*	*18.8*
1951	1,252.1	411.7	1,663.8	153.0	217.6	165.1	*75.3*	*24.7*
1952	1,204.0	474.0	1,678.0	96.2	115.1	100.8	*71.8*	*28.2*
1953	1,335.2	642.8	1,978.0	110.9	135.6	117.9	*67.5*	*32.5*
1954	1,159.5	592.6	1,752.1	86.8	92.2	88.6	*66.2*	*33.8*
1955	1,376.4	729.1	2,105.5	118.7	123.0	120.2	*65.4*	*34.6*

Source: Economic Planning Agency, "Monthly Report on National Income" No. 85.

Table 3 Shifts in Fiscal Loans and Investment (in billions of yen)

Fiscal year	1949	(%)	1950	(%)	1951	(%)	1952	(%)	1953	(%)	1954	(%)	1955	(%)	1956	(%)
Supply of funds to basic industries	87.1	*58.7*	51.8	*38.7*	96.1	*41.6*	108.7	*38.8*	111.5	*37.0*	79.5	*32.7*	65.2	*23.6*	43.6	*16.9*
Promotion of exports	—	—	5.0	*3.7*	12.0	*5.2*	4.0	*1.4*	—	—	—	—	20.0	*8.0*	24.5	*9.4*
Financing agriculture, forestry, small and medium business and construction of housing	3.3	*2.2*	17.0	*12.7*	33.8	*14.6*	55.0	*19.6*	68.2	*22.7*	63.6	*26.2*	81.8	*29.6*	93.8	*36.2*
Local government bonds	31.0	*20.9*	41.0	*30.7*	56.2	*24.3*	83.0	*29.6*	99.8	*33.2*	89.4	*36.8*	91.4	*33.0*	84.0	*32.4*
Government construction investment	27.0	*18.2*	19.0	*14.2*	33.0	*14.3*	29.7	*10.6*	20.5	*6.8*	9.5	*3.9*	15.0	*15.4*	10.3	*4.0*
Others	—	—	—	—	—	—	—	—	1.0	*0.3*	1.0	*0.4*	1.2	*0.4*	2.9	1,1
Total	148.4	*100.0*	133.8	*100.0*	231.1	*100.0*	280.4	*100.0*	301.0	*100.0*	243.0	*100.0*	276.6	*100.0*	259.2	*100.0*

Source: Ministry of Finance, "Zaisei Kinyu Tokei Geppo" (Monthly Report of Fiscal and Monetary Statistics) No. 62, 1956.

Table 4 Shifts in Funds Source of Fiscal Loans and Investment (in billions of yen)

Fiscal Year	1946–1948	(%)	1949	(%)	1950	(%)	1951	(%)	1952	(%)	1953	(%)	1954	(%)	1955	(%)	1956	(%)
General Account	26.4	*43.6*	91.5	*38.7*	25.3	*17.1*	156.0	*44.1*	79.0	*24.8*	48.8	*16.2*	21.5	*8.9*	10.8	*3.9*	2.0	*0.8*
Trust Fund Bureau	34.1	*56.4*	31.0	*13.1*	59.0	*39.8*	129.0	*36.5*	178.3	*56.0*	172.3	*57.2*	158.0	*65.0*	171.1	*61.9*	169.9	*65.5*
Postal Life Insurance	—	—	—	—	—	—	—	—	—	—	19.0	*6.3*	46.0	*18.9*	50.3	*18.2*	56.4	*21.8*
U. S. Aid Counterpart Fund	—	—	114.1	*48.2*	63.9	*43.1*	68.7	*19.4*	61.1	*19.2*	18.5	*6.1*	—	—	—	—	—	—
Surplus Agricultural Commodity Fund	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.4	*7.7*	17.7	*6.9*
Industrial Investment Special Account	—	—	—	—	—	—	—	—	—	—	42.5	*14.1*	17.5	*7.2*	23.0	*8.3*	13.2	*5.1*
Total	60.5	*100.0*	236.6	*100.0*	148.2	*100.0*	353.7	*100.0*	318.4	*100.0*	301.1	*100.0*	243.0	*100.0*	276.6	*100.0*	259.2	*100.0*

Source: Ministry of Finance, "Zaisei Kinyu Tokei Geppo" (Monthly Report of Fiscal and Monetary Statistics) No. 62.

industries such as electric power, shipbuilding and the like. Thus, it should be analysed what was basic industries and to what extent fiscal loans and investment have been directed. In both of the above two respects, it has changed notably during the twelve years of the postwar period and the effects on the change in industrial structure of our country have been decisive. The process of shifting emphasis from primary industries such as agriculture and mining immediately after the war to key industries such as electric powar, steel, shipbuilding and the like later is very interesting to observe as a concrete example of economic policy. Further, it seems that the main direction of fiscal loans and investment is changing from industrial reconstruction to housing construction and is decreasing; in 1949 it was 58.7%, in 1952 38.8%, in 1955 23.6% and in 1956 it was only 16.9%. The decrease in 1956, not only in proportion but also in absolute volume, is regarded as a cause for the appearance of the bottle neck problem as will be pointed out later.

It is hard to say whether this recent trend indicates properly the future of fiscal loans and investment. In response to the increase in bottle necks or slowdown of the increase in the rate of income, it might be possible that fiscal loans will be directed again to basic industries. However what should be taken into account is sources on which this sort of investment is dependent. The nature and change of the funds source restrict the range and direction of fiscal loans and investment.

III. *Changes in the Sources of Investment Funds*

In general, the sources of public investment funds which is directed to government-managed corporation and public works is a contribution from the government general account, that is, taxes, and indirect investment as supplying funds to private industry depends on the Trust Funds Bureau Fund, that is, postal saving. There is a big difference between immediate postwar period and today as to this investment funds sources.

Change in loan funds shows (Table 4) that from 1946 to 1948 up to 43% of these supplementary funds to private industry were provided by taxes (general account). It may be an abnormal phenomenon that such indirect investment was also financed by tax revenues. This supply of funds from taxes decreased to 17.1% by 1950 fiscal year, however, it rose to 44.1%, the highest level, in fiscal year 1951 (note that this year's private investment rate was the postwar highest), then sharply decreased and in 1956 it became only 0.8%. According to this trend, fund sources moved to Trust Funds Bureau Fund and postal life insurance funds.

Usually taxes are thought of as forced saving, but it deserves that name only when it becomes a source of public investment. However, it should be government direct investment that taxes are spent for and it is a rather abnormal phenomenon that taxes are used for private capital formation. It shows how insufficient the funds for postwar reconstruction were. Under normal conditions, the range of fiscal loans to private sector is restricted so that it may not depend on taxes. In this respect it can be said that fiscal loans came to be normal in fiscal 1953.

Still, it is questionable whether more exclusive dependency of fiscal loan and investment funds upon Trust Funds Bureau Fund and the like instead of tax revenue can be called normalization. For example, in 1956 an unexpected decrease in postal saving restricted the supply of funds for fiscal loans and investment and funds to key industries were cut down. It was the restrictive measures taken in key industries during that year when private investment was abnormally high that caused the bottlenecks. Further, it can hardly be considered normal to use such as postal saving, that is funds for consumption by the low income groups, for financing only key industries. It may be regarded rather as normol that fiscal loans and investment are directed to the construction of housing and other welfare facilities so long as it depends on this sort of funds source.

There is more to be considred as to funds source of fiscal loans and investment. The United Kingdom with similarily large volume of government investment is financing funds to governmental enterpirse out of social security funds such as annuities. This seems to indicate that the future source of funds should be from such long-term funds.

The role performed by public investment is such that, if pursued intentionally, it can not only adjust short-term business cycle but it has also influence upon long-range changes in the capital structure. However, due consideration to the source of funds should make it clear that, formally speaking, government direcet investment is appropriate as a short-term measure and long-term investment should be carried out by indirect investment. Thus, unless funds source of loans programs and investment shift from short-term funds like taxes to long-term funds such as annuities, fiscal loans and investment can not perform smoothly long-term investment programs. Adequate social security funds have not been established in this country. The social security system has its economic significance in that its expenditures maintain consumption on the one hand and funds as savings go to investment.

IV. *Investment out of Government Revenues*

In the process of the reconstruction, even fiscal loans and investment, (government indirect investment), was financed out of tax revenues. Thus it is necessary to comprehend the difference between this and the case where the source of investment funds is restricted to private saving. This fact has been completely neglected in formulating the saving function.

The simplest hypothesis is that the source of investment funds is only saving which depends upon the level of income. Let Y be national income, S private saving and s the saving ratio. Then we have.

$$(1)\quad S=sY$$

This is not an appropriate formula for the consideration of our problem. It does not take into account the revenue and expenditure of the government. Therefore, we introduce tax and assume that saving is made out of income after the reduction of all sorts of tax. Let t be the tax rate then

$$(2) \quad S=s(1-t)Y$$

Saving out of disposable income after tax is lower than in the case of no tax imposition and the higher the tax rate the lower saving. And if no investment is made out of tax, private saving decreases with the introduction of tax. Then tax is not forced saving. However, if some proportion (v) of tax proceeds is invested by the government, with that savings added, gross domestic saving becomes,

$$(3) \quad S=[s(1-t)+vt]Y=[s+(v-s)t]Y$$

What should be noted is the fact that so long as the proportion of tax to be invested (v) is larger than the private saving rate (s), a portion of the government investment carried out in this way will raise the total investment level. Furthermore, in this case a rise in the tax rate also helps increase investment. On the other hand, if $s<v$, a level of saving will be lowered. In this case a rise in tax rate decreases investment. This formula shows that as investment out of tax, that is, government direct investment should decrease notablly, making it lower than the private saving rate, a reduction of tax (that is, a decrease in t) is the only measure to prevent the level of saving from dropping.

Suppose that the investment function consists of acceleration investment and independent investment and let the acceleration coefficient be b and independent investment be A. Then, in equlibrium, with saving as mentioned above, we have (surfix n indicates period)

$$(4) \quad b(Y_{n-1}-Y_{n-2})+At=[s+(v-s)t]Y_{n-1}$$

From this, a growth rate of income becomes

$$(5) \quad \frac{(Y_{n-1}-Y_{n-2})}{Y_{n-1}}=\frac{[s-(v-s)t]}{b}-\frac{At/Y_{n-1}}{b}$$

As it can be seen, the tax rate (t) and the rate of investment out of tax (v) both operate as strategic factors to determine the rate of growth.

The saving function usually assumed that there is not the existence of the government as formula (1). Even if the assumption that saving is made out of disposable income is introduced, it merely presents tax only as a factor lowering the saving level. Only by considering investment out of government revenues, can tax be treated to work as forced saving and determine a level of investment.

In the process of postwar reconstruction, investment out of tax revenues financed not only direct investment of the government but also indirect investment. This, coupled with a relatively high tax rate, raised the total investment level and also furthered the growth of the economy. The mechanism of such phenomena was described above.

V. *Public Investment as Fiscal Policy*

Generally speaking, fiscal policy has developed to rectify gaps in the economy. These gaps may be deflationary gaps, or inflationary gaps, gaps between saving and investment; in short, they are gaps between demand and supply. This means that voluntary actions of the private economy alone do not always bring about equlibrium between demand and supply. Furthermore, even if equilibrium situations are maintained for a long period, the level of the equlibrium may be too low to guarantee full employment of labor and full utilization of capital. This necessitates fiscal policy as a complementary operation.

In a country with already matured capital accumulation, a deflationary gap or excess saving over investment is likely to happen, and this mechanism is analysed as the secular stagnation thesis or the theory of a mature economy. Accordingly, a corresponding fiscal policy is mainly to fill up the deflationary gap and to absorb excess saving. Also in such a country inflation is considered a temporary phenomenon which appears only after demand (investment) exceeds supply (saving) beyond full employment (or utilisation) income level. It seems that there exists no inflation before full employment or full untilization. As a means to fill gaps in the country, it is felt necessary to apply fiscal policy in order to increase effective demand temporarily. Thus, attention is given only to public works, which are most easily operated.

On the contrary, in an economy where capital accumulation is not sufficient and not matured, things are entirely different. There appear constantly the phenomena of inflationary gap and excess investment demand. In such a country it becomes all the more necessary to absorb consumption demand and investment demand and to reduce the multiplier effect by tax measures. However, this can not be done effectively by negative measures of minimizing fiscal expenditures. Especially in a war devastated country, even risking the danger of inflation rapid rehabilitation construction has to be carried out. In this respect the investment policy of the government here differs from merely absorbing excess saving. As was seen already the way to influence private capital formation through fiscal loans and investment gives not only a short-term impact to the economy, but also long-term effects to the structure of the economy. The rapid process of postwar economic development shows this result.

However, private investment in such a country is extremely unstable. Accordingly the direction of fiscal policy also can not help but fluctuate and thus the direction of government investment is not determined. The experience in this country indicates this. Particularly a reduction or postponement of government investment is likely to be adopted as disinflationary policy for oppressing excess investment demand. This is what happened in 1954 and this year. When government investment amounts to nearly half of total investment, merely raising the rate of interest does not have a big effect on the total investment level except psychologically. Furthermore, as indirect investment of the government covers important industries, particularly bottle-neck industries, the policy of investment reduction influences greatly supply capacity over a long-range as well as restrict short-term effective demand. Without stabilization of this unstable investment, particularly, complementary stabilization of investment which has the character of independent investment such as government investment, the economy can not but fluctuate.

Before concluding this essay, some remarks should be mentioned as to the efficiency of government investmment. Usually a concept of marginal productivity of capital is used in order to measure investment efficiency. However, this only compares investment with revenue at a certain point of time. This is not an appropriate measure to judge efficiency for "long-range investment which only pays for itself over a long-range." In the case of such long-range investment comparable revenue should be the long-range anticipated revenue until the end of its durable period and also comparable investment distributed over a long-range. The very way of comparison between anticipated revenue and distributed investment is the measure of judging the efficiency of investment as a genuinely dynamic concept. Furthermore, where various types of capital have respectively specific purposes, investment criteria should be varied according to their uses. Public investment has entirely different uses according to whether it is direct investment or indirect investment. In judging the efficiency of investment of govenment-operated corporations or public works for which revenue is not the sole purpose, the criteria should be different from the usual one which is directed to only private investment. I do not try to go into the problem deeply, however, further studies should be conducted in order to avoid misunderstandings.

AN UNREALIZED PLAN : THE VALUE-ADDED TAX IN JAPAN*

By Motokazu Kimura

Professor of Public Finance

Most of the problems involved in the value-added tax in Japan have already been discussed at great length by Professor Hanya Ito,[1] professor Martin Bronfenbrenner[2] and others. Consequently, the present writer endeavors to examine the value-added tax in its bearings on the socio-economic conditions of Japan. The tax was, upon recommendation of the Shoup Mission[3], enacted in July, 1950. However, the operation of the statute was postponed twice and then repealed in 1954 without ever being put into effect. Why was it recommened? How was it enacted? And, why was it repealed? These are the questions I wish to answer in this paper.

The outline of the Shoup Recommendations

The "Report on Japanese Taxation" may be said to be an elaborate display of painstaking scientific work. Objectives, that the Shoup Mission aimed at, were comprehensive. The Mission laid much stress upon the necessity to designate productive taxes to local governments, to check the overgrowth of plutocratic power, to avoid taxes not helpful in fostering responsible citizenship and democracy, and to satisfy the modern principle of taxation as much as possible—the principle of ability-to-pay as the standard of equity. At the same time, the Mission paid much attention also to the problem of how to encourage the accumulation of capital. In reconciling those objectives, the Report may be said to have given a remarkable coherence to the whole reform plan.

Thus, it should be remembered that the value-added tax, too, came under the recommendation as an integral part of the program. In other words, the

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* This paper is the English version of "Un Projet inachevé: L'impôt sur value ajoutée au Japan" appeared in *Revue de Science et de Législation Financières*, Tome XLVIII, 1956.

[1] Cf. Hanya Ito, "The Value-Added Tax in Japan," *The Annals of the Hitotusubashi Academy*, Vol. I, Number I, October 1950; this article is contained in, Hanya Ito, *Essays in Public Finance*, Economic Series, No. 3, The Science Coucil of Japan, Tokio 1954. Hanya Ito, "Theorie und Techinik der Nettoumsatzsteuer in Japan," *Finanzarchiv*, Vol. 15, No. 3, Tuebingen 1955.

[2] Cf. Martin Bronfenbrenner, "The Japanese Value-Added Sales Tax," *National Tax Journal*, Vol. 3, No. 4, December 1950.

[3] The American taxation mission headed by Professor Carl S. Shoup came to Japan in May, 1949 and submitted a report to the Supreme Commandor of Allied Powers (SCAP) in August, 1949. Tax bills, national and local, were drafted by the combined efforts of the SCAP and the Japanese Government.

Mission emphasized that the reform should be effected without any grave departure from the recommendations as a whole. To visualize the extent to which the Japanese taxation was to undergo changes, I should like to insert the following table.

Table 1 Revenue Effects of Major Tax Recommendations
(in billions of yen)

	Fiscal Year 1949–50	Fiscal Year 1950–51	Difference
A. National Government			
Personal income tax	310	290	−20
Corporation income taxes	27	35	+ 3
Tobacco monopoly profit	120	120	0
Liquor taxes	65	80	+15
Transactions tax	45	0	−45
Other internal taxes	68	51	−17
Total	**635**	**576**	**−59**
B. Local Governments: Prefectures			
Inhabitant's tax	11	0	−11
Land and house tax	7	0	− 7
Enterprise tax, income basis	26	0	−26
The value-added tax	**0**	**44**	**+44**
Admission tax	5	10	+ 5
Amusement taxes	6	12	+ 6
Other taxes	22	5	−17
Total	**71**	**71**	**0**
C. Local Government: Municipalities			
Inhatibant's tax	12	60	+48
Land and house tax	7	52	+45
Enterprise tax, income basis	26	0	−26
Admission tax	9	0	− 9
Amusement taxes	6	0	− 6
Other taxes	16	7	− 9
Total	**79**	**119**	**+40**

It is quite clear that a drastic change was introduced in the allocation of tax resources between the three levels of government, particularly in favor of municipalities, including cities, towns and villages. In accordanec with the objective to strengthen loal autonomy, municipalities, which had long been relying upon national or prefectural tax agencies in assessing such taxes as the inhabitant's tax, the land tax, the house tax, and the enterprise tax, were now to be given substantial resources independent of superior authorities. But, as for the Inhabitant's tax, municipalities were to be allowed to use the national income tax returns in checking the incomes of inhabitants.

It was also characteristic of the Shoup Plan that it extended the grant-in-aid system so as to reduce various subsidies to local units, for it feared that the central government would continue to control over local governments by dint of specific subsidies.

As will be seen later, the taxpayers were justifiably demanding to cut their burdens in 1949. Therefore, the Shoup Mission recommended to repeal the transaction tax, the tax on the transfers of securities and so on at the national level, and the real property acqusition tax, etc. at the local level. Reductions in the personal income tax rates and others were also recommended. But, as far as local tax revenues were concerned, they had to be either kept remained or increased. This was the major reason why the Shoup Mission contrived to reform the enterprise tax on income basis.

A value-added tax as recommended

As shown on Table I (p. 14), the enterprise tax was an independent prefectural tax yielding approximately 50 billion yen in 1949. The yield was shared with municipalities usually fifty-fifty basis, through the device of a municipal surtax. The tax base was net profits. They were usually those computed for the purpose of the national income taxes. Accordingly, the enterprise tax was in effect a kind of surtax on the national income tax. To make the matter worse, the basic exemption and dependency credits allowed for the national personal income tax were not applicable for the enterprise tax. Moreover, the individual proprietors of shops or small factories had to pay a prefectural-municipal inhabitant's tax, most of which was also based on their net profits. A great increase in the inhabitant's tax, as was planned by the Mission, would certainly make the cumulative effect of the three-fold taxes disastrous.

In order to avoid this danger, it was needed to contrive a new base for the enterprise tax. Thus, a value-added tax was, for the first time, introduced to Japanese people.[4]

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[4] In the United States of America, a value-added tax had long been discussed by students of public finance such as Thomas S. Adams (1921), Gerhard Colm (1934), Paul Studenski (1940), Carl S. Shoup (1943) and so on. As to the development of theories of a value-added tax, see Hanya Ito, The Value-Added Tax in Japan, in the above-mentioned place. There is no doubt that the idea of the value-added tax was much influenced by those discussions.

According to the recommendation, value-added would be much simpler to compute than the net income, because no computation of depreciation needs to be made. And again following to the Report, the sum of profit, interest, rents and payroll, would be equal to the balance between total gross receipts and all the purchases from other firms, including the purchase of capital equipment, land and buildings.

An enterprise tax based on value-added was to be administered exlusively by the prefectures, which should obtain the entire yield of it. The rate of the new tax was suggested to be set at a level that yield the prefectures about 44 billion yen per year. Farmers were to be exempt, because they were coming under a substantial increase in the real estate tax, which was recommended to supplant the land tax and the house tax at the municipal level.

In fact, the rate was tentatively computed to be somewhere around 4–6 per cent.

Two other merits were attached to a value-added tax. First, it is free from the distorting, pyramiding tendencies of the transactions tax. The Report stated that the transactions tax, or turnover tax, was the least refined member of the sales tax family, and the least promising member of 'the present Japanese tax system.' While a retail sales tax would escape the defects, a nation-wide retail sales tax would not be practicable in Japan, 'for there are too many small retail shops whose accounting records are inadequate or non-existent.' The best solution was, the Report concluded, to transform the transactions tax into a tax levied upon the value-added.

The second merit attached to a value-added tax was the economic advantage that it does not discriminate against the use of capital, especially in the form of labor-saving machines.[5]

Codification of the value-added tax

The Shoup plan encountered bitter complaints all the more because taxpayers' hope for the reduction of their burdens was extremely great. Despite the pressure of the SCAP, grave objections were raised by those brought under heavier taxation. Almost all the devices elaborated upon the idea that Japan should have the best taxation system in the world, were subjected to criticism. For example, the net worth tax, the revaluation tax and other new taxes were sharply criticized by the businessmen. The inclusion of all incomes into the taxable income of the personal income tax, one of the most important cornerstones of the Shoup Program, likewise arose bitter complaints among the wealthy taxpayers. In the case of the estate tax, a great extension of the tax base caused unrest among businessmen, because the Shoup Mission planned also to include depreciating assets which were hitherto not subject to taxes into the tax base of the estate tax.

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[5] It should be remembered that laborers and their leaders, influenced by the statement that the value-added tax is favorable to labor-saving, took a stand against the value-added tax.

And yet, no other taxes were more heatedly argued than the value-added tax.

It was anticipated that the value-added tax would bring about a sharp change in the allocation of tax burdens. The new tax was deemed to be favorable to small enterprises, while business enterprises with heavy capital equipment already on hand were to be penalized, because no depreciation allowances were permitted on it. It was also expected that the tax would be disadvantageous to service industries such as banking, rail-way transportation, etc.

We heard bitter complaints and there were few supporting arguments. Let us look back some of the demands, reasonable and unreasonable, presented especially by business groups.

(1) The standard rate of the value-added tax should be reduced from 4 per cent to 2 per cent.

(2) A reduced rate should be applied to that part of the value-added tax which is levied upon payrolls.

(3) A special allowance should be devised for service industries.

(4) In view of the difficulty in shifting the value-added tax, a reduced rate should be permitted for public utilities that are under the regulation of price control.

(5) With regard to capital assets already on hand, depreciation allowance should be permitted.

(6) Interest received by banking facilities should be exempt, otherwise, double taxation would occur.

(7) Rent and rentals received by lessors should be exempt, if not, double taxation would appear.

Taking into consideration some of those demands, the Bureau of Local Autonomy drew up the Value-Added Tax Bill. The outline of the bill can be summarized as follows:

I. Tax base;

The balance between total gross receipts of a business enterprise in the wide sense of the words, and all amount paid to other business enterprises.

II. Computation of value-added;

A. Business in general:

i. Gross receipts: Total gross receipts from sales of goods and fixed assets, or from the performance of services, and receipts from related trade or business activities.

ii. Exclusions: Interest, dividends, rent and rentals received.

iii. Deductions: All amounts paid for the acquisition of fixed assets, commodities, semi-manufactured goods, materials, or supplies; Commission paid, storage, property insurance premiums, advertisement expenses, and taxes paid, except those levied on net income.

iv. Non-deductible: Rent, rentals and interest paid.

B. Financial business, including banking and insurance:
  i. Gross receipts: Interest, dividents and others received.
  ii. Exclusions: Rent and rentals received.
  iii. Deductions: Interest paid.

III. Exemptions;

A. Farmers, lessors and forestry traders.

B. Business enterprises with the value added of less than 90,000 yen per year.

IV. Rates;

The standard rate of 4 per cent for business, and 3 per cent for professions, stock-breeding and fishery, the maximum rates being 8 per cent and 6 per cent respectively.

V. Allocation of the tax yield between prefectures;

In the case a concern does business in various prefectures, the tax base is to be allocated according to payrolls, but in the case of manufacturing, electricity supplying, gas supplying, etc. fifty per cent weight in the allocation is to be based upon payrolls, and the remainder on the value of fixed assets.

VI. Transitory provisions;

In order to avoid a sudden increase in the tax burden, a relief is given to banking business, insurance business, warehousing business and the like. Namely, notwithstanding the preceding provisions, the following percentages of gross receipts will be used as the tax base for the first year after the enforcement of the tax law:

45 per cent for banking business,
100 per cent for trust business,
15 per cent for life insurance business,
50 per cent for transportation (except railway) business,
40 per cent for warehousing and railway transportation business.

The new Local Tax Bill containing the Value-Added Tax Bill was presented before the Diet, but failed to secure the approval in its 7th session in March, 1950. As a result, a great financial vacuum took place in the local fiscs.

It was in June, 1950 that the Local Tax Bill was carried in the 8th session of the Diet. But, as far as the value-added tax is concerned, its operation was postponed until January 1, 1952. To fill the financial gap caused by this procedure, the Government arranged to restore the old business enterprise tax with slight modifications. Namely, the rates were reduced from 15 per cent to 12 per cent for corporated enterprises, and from 15 per cent to 10 per cent for private enterprises, and farming and forestry business were made exempt.

In the meantime, the Shoup Mission made a second visit to Japan in August-Spetember, 1950, and published a report again.

In the Second Report, too, the Shoup Mission stressed the sales tax nature of the value-added tax, and expressed opposition to the proposal to apply differentiated rates of 4 per cent for business enterprises and 3 per cent for professions. A plain objection was also expressed to the transitory relief provisions for specified business enterprises such as banking, warehousing, etc.

On the other side, the Report admitted that depreciation allowances should be permitted on capital equipment already on hand as of the date of the enforcement of the value-added tax. Another point that the Report recommended, was to introduce the addition method in computing value-added.

In the following year, 1951, the Value-Added Tax Act was revised slightly, but, the suggestions made by the Mission were hardly taken into consideration. The core of the revision was only to give corporated business enterprises the option to use either the subtraction method or the addition method, and the freedom to switch over from the one method to the other. In spite of the revision, the date of the enforcement was again postponed to 1953.

Why was the value-added tax postponed year after year till at last revoked altogether?

Theoretical ambiguity involved in the Recommendations

Although the concept of value-added had gradually been contrived in the academic circles, a value-added tax was not intelligible to the common taxpayers in Japan. Besides, there were some ambiguous points in the Report.

In the first place, it assumed that a value-added tax was a refined sales tax which can be shifted to consumers without having the distorting effect of pyramiding. Unlike a retail sales tax or a turnover tax, however, it is not easy for businessmen to compute at once how much their tax liability on a given sale or transaction will be, because a value-added tax as a percentage of gross sales differ between firms and industries. Businessmen rightly feared that their firms might be ruined, if they were compelled to pay the value-added tax when the business showed a loss.

In the second place, the Report maintained that a value-added tax was simple to compute. The sum of profit, interest, rents and payrolls, in short, the sum of factor costs, was deemed equal to the balance between total gross receipts and all purchases from other firms. By this reasoning, the Mission recommended to compute the tax base by the subtraction method. Similarly, the Second Report recommended to introduce the addition method for the convenience's sake, assuming that both the addition method and the subtraction method are bound to result in the same. But this assumption has been proved incorrect. As professor Ito[6] explained clearly, the value-added as computed with the subtraction method will not be equivalent to the value-added as computed with the addition method, unless a necessary adjustment is made to the concept of profit. If the profits as computed for national-income tax purpose is added to payrolls, interest and rental payments, the result will be different from the value-added computed with the subtraction method, because the net profit under value-added concept can only be obtained by specific accounting procedures as follows:

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[6] Cf. Hanya Ito, Theorie und Technik der Nettoumsatzsteuer, *loc. cit.*, pp. 460–465.

Net profit under value-added concept=*Net profit in its usual accounting term+Depreciation amount+ Decrease in inventories—Capital expenditure*

In the third place, the Recommendations left some ambiguity about the relation between the transactions tax and the value-added tax. As I mentioned before, the Shoup Report was strongly against the transactions tax, and recommended to repeal it only if total national government outlays are in fact reduced to the level of 646 billion yen. But the repeal of the transactions tax was not related to the introduction of the value-added tax, although, discussing the merits of the value-added tax, the Report made several references to the demerits of the transactions tax. Therefore, it was repealed as soon as budgetary expenditure showed an expected cut, in December, 1949. If the value-added tax had been connected with the repeal not only of the enterprise tax but also of the transactions tax, the case would have been brighter than it was.

In the fourth place, as to the theory that the value-added tax does not discriminate against the use of capital, room seems to have been left for doubt. The value-added tax increases the price of capital at least to an extent to which it is shifted forward. And in view of the increased rates of the municipal real estate tax which is levied on land, buildings and capital equipment, the theory has to lose some of its validity. Moreover, heavier capital equipment represents larger interest payments. Nevertheless, the statement that the vaue-added tax is to encourage the use of labor-saving machines, presented a good reason to the organized laborers for opposing the tax.

The factors which contributed to the repeal of the value-added tax in Japan

It is true that several ambiguous points mentioned immediately above had a considerable share in causing the abolition of the value-added tax, but reality was much complicated.

A. Inflation and Insufficient compliance

To begin with, the year 1949 is marked by a sudden transition from 5-year-old drastic inflation to deflation, or disinflation, as was officially proclaimed by the Government.

As a result of the unconditional surrender of Japan in 1945, her territory was reduced from 263,357 square miles to 142,224 square miles, with the population of 73,064,000, while the war damages amounted to as high as 25.4 per cent of the total value of capital equipment and durable consumers' goods which would have existed in Japan proper, had the war not been waged against the Allied powers. The defeat gave rise to a sweeping crack in the mechanism of war economy that had been kept working by a strict rationing program and price regulations.

A great majority of the Japanese people were directed by a mixed feeling in which despondence predominated. With fears, they watched how the SCAP put the occupation policy into effect. In fact, the SCAP ordered to purge undesirable Japanese from public offices, to dissolve the plutocracy, to redistribute lands among cultivating tenants, to restrict concentration in the business activities, and to enforece a captial levy.

Under these circumstances, a vicious circle of budgetary deficits and rise in prices took place, and people rushed to convert their money into goods. The follwing table shows how vehemently inflation progressed.

Table 2 National Budget Expenditure, Price Index, etc.

	National Budget (General Account) Expenditure (in million yen)	Public Debt (in million yen)	Paper Money (in million yen)	Effective Price Index*
1944	19,871	107,633	18,876	366.4
1945	21,496	140,811	56,658	1,529.0
1946	115,207	173,135	94,853	5,013.0
1947	205,841	209,462	220,870	12,982.0
1948	461,974	280,473	356,795	24,458.0
1949	699,448	391,397	357,969	28,368.0
1950	633,294	341,913	422,063	—

*1928–1932=100, prices at the black market being considered.
Figures are quoted from Yuzo Yamada, Estimates of National Income in Japan, Tokyo 1951.

Both the SCAP and the Government began to feel alarmed, when the Diet compiled additional budgets repeatedly as many as seven times for a single fiscal year of 1947. The situation was not improved in 1948. The inflation could not be checked without a balanced budget, because the inflation was not being caused by the fall in foreign exchange, as was the case in Germany in 1920's, but by budgetary deficits. During the inflation period, the taxation system in Japan was, as a whole, greately distorted by the nominal increase in incomes and the accumulation of black market profits. Enormous profits from the black market could no longer be kept accessible to tax collecting agencies, while wage-earners were forced to come under the higher and higher bracket of the rate of taxes. Taxpayers increased in number, causing a heavy burden upon tax collectors. For example, in the pre-war period, the number of taxpayers under the national personal income tax was less than a million people, while it reached an amazing figure of more than twenty-one million people in 1949.

Upon request of the SCAP, Minister Joseph M. Dodge came to Japan to tackle the problem. His plan was to close up every loop-hole, budgetary and monetary, which was leading to an overissue of paper mony and to raise more tax revenues by enforcing tax laws as strictly as possible. He urged the Government to reduce the total expenditure in the national General Account to 661 billion yen for the fiscal year 1949, as compared with 741 billion yen[7] for the previous fiscal year. Minister Dodge compiled an all-round budget consisting of the national General Account, the national Special Accounts, the Corporation Accounts and the local budgets, making a surplus of 211 billion yen for the redemption of various kind of public loans. Thus, the Dodge Stabilization Program not only checked the inflation but gave rise to a deflationary tendency.

The Shoup Mission had to perform a task at the moment when it became extremely hard to perform. The demand for tax cuts was vigorous, because the tight-money policy began to jeopardize the solvency of taxpayers. Organized laborers were made busy in coping with the unemployment problem. Nevertheless, considering the urgent necessity to meet what the Dodge Plan required, the Mission could not respond to the eager demand for tax cuts.

Taking account of a vicious circle created by high rates and high evasion, the Mission tried to cut rates. However, the tax rates recommended by the Mission were, as a whole, not sufficient to break the circle. Upon setting rates, the Mission was influenced by the opinion of the Finance Ministry of Japan who under-estimated the taxable income on the very existence of prevailing evasion and the lack of voluntary compliance and the inefficient tax administration.

The Shoup Mission tried to contrive a tax system which would be applicable to Japan as a permanent tax system, and which would be the best tax system in the world. As mentioned before, the Shoup Plan is a plan worked out logically. Its enforcement demands a high standard of technical competence and stabilized economy. But, Japan did not have these prerequisites at least at that time. Too many small businesses came under taxes. Tax offices were reinforced by too many inexperienced officials. Black market did not cease to exist. In view of the insufficient tax rates cuts recommended by the Shoup Mission, taxpayers still understated their incomes or transactions. They hated to suffer from visiting tax-collectors. Also they did not like to see their records gathered by the tax authority. For example, the extreme unpopularity of the national transactions tax was, to a great extent, due to the fact that a tax collector could check up income tax returns by means of the transactions tax payments.

As a matter of fact, taxpayers feared that a new tax would cause another vexatious contact with a tax collecting agency. This feeling, coupled with the fact that the rates of the value-added tax was set higher than actually needed, induced even the small businessmen, the major beneficiary of the enterprise tax on value-added basis, to participate in opposing the new tax.

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[7] Budget estimate. The figure settled is 699 billion yen as shown on Table 2.

B. The lack of faith in local authority

That the value-added tax was designated to the local, prefectural governments, also had a considerable effect upon the repeal of that tax. For a long time since the Meiji Restoration in 1868, the prefectures had been organized as agencies of the central Covernment. The Cabinet had the exclusive power of appointing and removing the governors of the prefectures. Although many taxes were allocated to the prefectures, a great portion of prefectural revenues was raised by imposing surtax on the national taxes such as the land tax, the personal income tax and so on. Most of the independent prefectural taxes, minor in productivity, were levied according to external signs as the tax standard. Tax officials at the level of prefectural governments became accustomed to rely upon what the national tax agencies assessed and computed.[8]

Based upon the conviction that local autonomy is essential to democracy, the SCAP made an organized effort to destroy the long-established mechanism of highly centralized bureaucracy in Japan. The governorship of the prefecture was made elective, and thus the governors became responsible not to the Cabinet but to the inhabitants of each prefecture. It was along this line that the Shoup Mission introduced a new, independent tax to the prefecture, leaving it considerable scope as to the rate of the value-added tax, so that the tax can be fitted to differing local conditions. In order to strengthen the local source of revenue, a system of grant-in-aid, too, was introduced on a large scale.

However, in view of the fact that the reforms such as the creation of local police system, the extention of compulsory education period, etc. caused a great increase in the local expenditure, the situation was not promising. Warning was taken from the fact that, in April, 1949, the grant to the local governments, the prop and stay of the local finance, was reduced by fifty per cent so as to suit the convenience of the national finance.

It was expected, theoretically and practically, that a poorer agrarian prefecture would inevitably levy the value-added tax at a rate of more than 8 per cent. The taxpayers were apprehensive of being occasionally imposed a high rate of the tax, the base of which is likely to arise much dispute between them and the incompetent tax assessors.

C. The predominant influence of capital interest

As I mentioned before, the value-added tax, as recommended by the Shoup Mission, undoubtedly disfavors the big business groups. It has been estimated that, if the value-added tax were substituted for the enterprise tax, net profit basis, approximately half the burden would be shifted from the small enterprise group to the corporated enterprise group.[9] "A fifty per cent increse in tax burden?"

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[8] Similary, municipalities had long been made accustomed to rely upon both the prefectural and the national tax agencies.

[9] Cf. Hanya Ito, Theorie und Technik der Nettoumsatzsteuer, *loc. cit.*, p. 477.

the big business group groaned, "that would cause incalculable harm to the very basis of Japanese industry."

With the conclusion of the Peace Treaty just ahead, both businessmen and politicians alike began to urge the necessity of lowering the costs of production, so that Japan may be able to compete with foreign countries on the world market.

After succeeding in postponing the enforcement of the value-added tax till Japnuary 1, 1952, the capital interest groups began to attack the core of the Shoup Plan.[10] First of all, the Government, influenced by the various business circles, gave up the principle of including all incomes, from whatever sources, into taxable income of the personal income tax. Accordingly, no measures were taken against the usual practice of concealing interest income by spreading deposits anonymously in large number of tax-free accounts. Nor was made any significant effort for the registration of the transfers of securities, the only effective device for including capital gains into taxable income. And it was as early as in 1951 that the Special Taxation Measures Act allowed specific key industries to write down fifty per cent of the price of machinery for two years including the year of acquisition, and permitted the enterprises to add fifty per cent to the normal depreciation allowance on ships and equipment useful for the industrial rationalization. Therefore, large-scale industries could save their corporation income tax payments, thereby reducing the local enterprise tax, net profit basis. The net worth tax, too, was abolished in 1953.

It may easliy undestood that the repeal of the value-added tax was not caused by the alleged defects of the tax itself, but by the strong influence of the capital interest groups.

The imperfectly adopted Shoup Plan and Japanese economy

In any capitalistic country, businessmen are given a preponderent voice in the matter of economic policy in general, and fiscal policy in particular, but, in Japan, the connection between the big business and the Government is based on the economic structure peculiar to this country. In view of the fact that Japan fought with the Allied Powers for four years, she must be a highly industrialized country. In fact, during World War II, she manufactured war stores of all kinds, includeing airplanes, battle-ships, etc. More than 5 million soldiers were mobilized and equipped with modern arms. But, eighty years ago, Japan was an overwhelmingly agrarian country with little trace of modern industry. How was this amazing progress possible?

The government played the most important role in introducing modern industry. It is not too much to say that industrialization of Japan was made possible only by the planned activities of the government.

But, on the other hand, we should notice that the exacting fiscal policy interrupted an over-all, balanced development of the national economy. The growth of the domestic market was much retarded by high rate of the land tax and various excises. And, as a result, enterprisers were bound to rely upon an exogenous market created, so to speak, artificially by the Government.

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[10] Cf. Motokazu Kimura, "Taxation and Capital Accumulation," *The Annals of the Hitotsubashi Academy*, Vol. IV, No. 1, October 1953, p. 29 ff.

In the earlier stage of capitalistic development, or mercantilism, it was widely observed that an active demand artificially created by the government gave a great stimulus to the modern industries. In this sense, an exogenous demand was the mother of capitalism. However, in most of the western countries, it was gradually accompanied by, and afterwards outgrown by an endogenous demand. In Japan, on the contrary, the transplanted industry had to seek a market developed in the form of colony abroad or procurement demand at home.

Success or failure of an enterprise, under these circumstances, depends more upon favor or disfavor of the government than the ability to compete with rivals on the free market. Thus, the traditional tenant farmings and domestic industries, countless in number, remained side by side with the great manufacturing industry. Traditionalism, favoritism, paternalism and many other semi-medieval ism's preserved among the farmers and craftsmen, to a greater or lesser extent, produced a formative effect upon the whole economy. The following table will illustrate a characteristic aspect of the Japanese economy.

Table 3 Population Distribution among Industries, 1930 and 1950
(in thousand)

	1930		1950	
Total population	69,341		83,200	
Those engaged	29,341	(100%)	35,626	(100%)
Agriculture	13,742	(40.8%)	16,102	(45.2%)
Forestry, Hunting	186	(.6%)	424	(1.2%)
Fishing	562	(1.9%)	682	(1.9%)
Mining	314	(1.1%)	591	(1.6%)
Construction	977	(3.3%)	1,531	(4.3%)
Manufacturing	4,702	(16.0%)	5,690	(16.0%)
Whole-sale, Retail sale	4,113	(14.0%)	3,963	(11.1%)
Financial, Insurance Business	194	(.7%)	362	(1.0%)
Transportation, Communication	289	(4.4%)	1,811	(5.1%)
Service industry	459	(8.4%)	3,056	(8.6%)
Public service	733	(2.5%)	1,376	(3.8%)
Unknown	71	(.2%)	27	(.1%)

It is characteristic of the Japanese economy that, out of those gainfully engaged, only 36.3 per cent are employed, the remaining 63.7 per cent being either self-employed or family workers. Self-employed farmers and retailers as well as family workers, mostly devouring one another, are making a bare living. Concealed unemployment are prevailing among those people. Under the pressure of this concealed unemployment, even the most advanced leader of a business enterprise would hesitate to dismiss his employees on account of occasional, financial difficulties. To dismiss an employee is often to derive him of his subsistence altogether.

The philosophy which underlies the Shoup Plan is that of competitive business relationship and efficiency. It is a necessary product of the American society, where everyone keeps his deposit account with a bank, pays by check, and keeps the record of his payments, and where banks are ready to lend money not only to the business but to house-wives. In Japan, the practice of paying by check is limited to a small number of well-off businessmen, and a bank is, viewed from the standpoint of a small enterpriser or a house-wife, not the place to get loan but the place to deposit money.

Unlike the United States of America where there is a good deal of social and economic mobility, Japan, under the pressure of increasing population, finds it hard to materialize the necessary conditions for adopting the philosophy of the Shoup Plan. The recent development shows a greater departure from the principles recommended by the Shoup Mission. There will be much more turns and twists in the future. Nevertheless, the objectives set by the Shoup Plan are, I believe, not in the wrong. If only the public expenditure be reasonably reduced, or what comes to the same thing, the national income be increased by an all-round, balanced development of the national economy of Japan, we shall be able to come up to the objectives.

JAPANESE GAINS FROM TRADE, 1878-1932[1]

By Keinosuke Baba

Professor of Economic Philosophy

The gains from trade may be measured in terms of three criterions, that is, the terms of trade, the balance of trade and foreign trade multiplier. In this paper we will try to apply these criterions to Japanese economy, 1878 through 1932, and evaluate her gains from trade. In the period 1878 through 1932 Japanese foreign trade developed quite rapidly within the framework of free competitive mechanism. Government control of foreign trade and exchange did not play any important part. Foreign exchange control began in 1933 and trade control later in 1937. So this period may be said to present us an appropriate scene where we can comfortably analyse the normal relationship between Japanese national economy and her foreign trade.

The analysis of the gains from trade relevant to this research consists of two parts. In the first part we apply each criterion separately to the relevant data available and measure the results. In the second part we compare these results and try to evaluate the Japanese gains from trade. The second part is, I think, more important than the first. The results obtained in the first part sometimes involve contradictory statements among themselves. The terms of trade show clearly a declining tendency, the balance of trade is normally unfavourable, but the multiplier effect of foreign trade is considerably high. If we could disregard the first two criterions and evaluate Japanese gains from trade exclusively in terms of the third criterion, our task is rather easy to handle with. But such a procedure is not a proper way of interpreting a dymanic economic phenomenon. There is a close relationship between the unfavourable terms of trade, the rather heavy deficits in the balance of trade and the high multiplier effect of foreign trade. These are nothing but various aspects of one dynamic phenomenon. We must interprete the relative role of these three aspects, each of which contributes in its own way to the development of Japanese national economy. This is a problem we tackle with in the later sections of this paper.

I. *Trend in the Terms of Trade*

Let us first try to apply the first criterion, that is, the terms of trade index to Japanese foreign trade, and investigate whether it is possible to evaluate the gains from trade in terms of this criterion.

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[1] This paper was originally written in Japanese in 1953 and contributed to the *Quarterly Journal of Agricultural Economy*, Vol. VII, No. 4, October 1953, pp. 1–48 (in Japanese). In translating it into English the original paper is revised. Original section I is omitted, and sections III and V are newly added.

Japanese terms of trade index has shown a downward trend from 1878 through 1932. This downward movement becomes rather marked from the first decade of the twentieth century. Table 1 shows the ten years moving average index numbers of the terms of trade, the original indices of which are calculated by Tōyōkeizai Shimpo Sha (Oriental Economist Co.) taking 1913 as the base year. The whole periods, 1878 through 1932, are divided into ten, each of which covers ten years and moves from period to period with an interval of five years. From period I through period VI the terms of trade remain rather steady. The annual rates of variation are comparatively small. These rates are as follows: 0.2% up from period I to period II, 0.2% down for period II to period III, 0.2% up for period III to period IV, 0.6% up for period IV to period V and 0.7% down for period V to period VI. The amplitudes of fluctuations are rather small. But after period VI suddenly there appear wide fluctuations among the terms of trade. The annual rates of variation are large, such as; 3.1% down for period VI to period VII, 1.1% down for period VII to period VIII, 1.4% up for period VIII to period IX and 0.7% down for period IX to period X. And from period VI through period X a marked downward trend is discernible.

Table 1 Three major index numbers relating to Japanese foreign trade

Periods		Volume of exports	Volume of imports	Terms of trade
I	(1878–1887)	10.76	10.51	124.41
II	(1883–1892)	16.35	15.77	125.58
III	(1888–1897)	22.99	26.54	124.24
IV	(1893–1902)	31.79	40.78	125.50
V	(1898–1907)	45.12	58.56	129.80
VI	(1903–1912)	61.38	70.87	125.37
VII	(1908–1917)	94.23	81.32	107.36
VIII	(1913–1922)	119.79	109.33	101.38
IX	(1918–1927)	133.46	154.83	108.47
X	(1923–1932)	170.42	183.85	104.78

Original annual index numbers are calculated by Tōyōkeizai Shimpo Sha (Oriental Economist Co.)
Source: *Nihon Boeki Seiran* (written in Japanese).

Table 1 also shows the ten years moving average index numbers of the volumes of exports and imports, the original indices of which are also prepared by the same company taking 1913 as the base year. These index numbers move upward steadily from period to period. The upward trends are indicated by the following equations

$$\log x = 1.6285 + 0.1352(t - \mathrm{V})$$
$$\log y = 1.6603 + 0.1344(t - \mathrm{V})$$

where x is the quantity index of exports, y is of imports, t the number of periods and V is the base period. The average annual rates of growth are almost the same for exports and imports. The rates are 6.4%.

Compared with these conspicuous upward trends in the volume of foreign trade, the downward trend among the terms of trade presents us several questions. Are these unfavourable terms of trade the necessary prices we must pay in developing our foreign trade? Do these terms imply our losses from foreign trade? And so on. These are important questions we will endeavour to anwser in the following sections. But before attempting to anwser these questions, it would be better for us to break down the terms of trade into their component factors and make clear which factors play dominant parts in making the terms of trade decline.

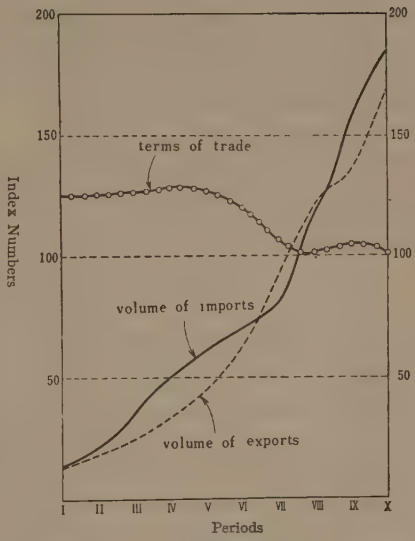

Figure 1 Three Major Index Numbers relating to Japanese Foreign Trade

Disparities in exchange rates and relative prices

The terms of trade are composed of two factors. One is the exchange rate and the other is the relative price level of import and export commodities. To clarify the relation between the terms of trade T, disparity in exchange rates D_e and discrepancies in relative price D_p, let us first define the respective terms as follows:

[Terms of trade index] $$T \equiv \frac{{}_eP_{01}}{{}_iP_{01}} \cdot E \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots (1)$$

while ${}_eP_{01}$ is the average price index for export commodities, ${}_iP_{01}$ is for import commodities in terms of foreign currencies and E is for actual exchang rate.

[Disparity index in exchange rates]

$$D_e \equiv \frac{E}{E_0} = E\frac{{}_dP_{01}}{{}_fP_{01}} \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots (2)$$

while ${}_dP_{01}$ is the index number for domestic general price level, ${}_fP_{01}$ the foreign general price level and E_0 the equilibrium exchange rate.

[Discrepancy index in relative prices]

$$D_p \equiv \frac{{}_dD_p}{{}_fD_p} = \frac{{}_eP_{01}}{{}_dP_{01}} \Big/ \frac{{}_iP_{01}}{{}_fP_{01}} \quad \cdots\cdots\cdots\cdots\cdots\cdots (3)$$

while ${}_dD_p$ is the discrepancy index in relative prices among domestic economy and ${}_fD_p$ the foreign economy.

From equations 2 and 3 it follows

$$D_p \cdot D_e = \left(\frac{{}_eP_{01}}{{}_dP_{01}} \Big/ \frac{{}_iP_{01}}{{}_fP_{01}}\right)\left(\frac{{}_dP_{01}}{{}_fP_{01}} \cdot E\right) = \frac{{}_eP_{01}}{{}_iP_{01}} \cdot E$$

$$\therefore \quad D_p \cdot D_e = T$$

Therefore we obtain the equation

$$T \equiv D_p \cdot D_e = \frac{{}_dD_p}{{}_fD_p} \cdot D_e \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots (4)$$

From this equation it is clear that we can estimate the value of ${}_fD_p$, if the values of T, D_e and ${}_dD_p$ are known. This is quite a convenient relationship. The value of these three coefficients can be measured mainly from the domestic data, if the general price indices of dominant foreign countries are available, and then the value of the fourth coefficient estimated without much trouble. Thus the movement in terms of trade can be analysed mainly in terms of the changes in domestic economy without bothering much about the complicated movements among the foreign countries which have trade relationship with us.

Two conditions are necessary for the terms of trade to remain constant. One is the equlibrium rate of exchange, that is, E is equal to E_0. The other is that there are no discrepancies between the general price level and the price levels of import and export commodities, that is, D_p is equal to unity. Thus it is clear that there are two cases for the terms of trade to become unfavourable. Case one is that the exchange rates are maintained in equilibrium level, but the average price of export commodities is low, or that of import commodities high, relative to general price level. Case two is that the relative price levels are stabilized, but the exchange rates are lower than the equilibrium rates.

Then which factor is dominant in making our terms of trade unfavourable? Table 2 shows the results of our analysis. From this table we may obtain the following informations. (1) The period VII makes a turning point in the relative movements of these two factors, that is, D_e and D_p. So it is convenient for us to divide the whole periods into two; one covers period I through period VII and the other period VIII through period X. (2) In the earlier periods both the sterling rate and the dollar rate are generally lower than the equilibrium rates, but in the later periods the rates of exchange become high. (3) The relative price level of our export commodities shows clearly the downward trend. In the earlier periods the prices of export commodities are comparatively high, but in the later periods they decline considerably. (4) The former the foreign countries import Japanes commodities dear, and the latter cheap, relative to their general price levels. (5) Based on these informations, we may conclude that the comparatively favourable terms of trade in the first half of the periods are brought about by the higher price level of our export commodities, and the

Table 2 Disparities in exchange rates and relative prices 1913=100.00

Periods	Relative prices index ${}_dD_p$	Disparity index		$T\cdot{}_fD_p$		Terms of trade
		dollar exchange rate ${}_aD_e$	sterling exchange rate ${}_bD_e$	${}_dD_p\cdot{}_aD_e$	${}_dD_p\cdot{}_bD_e$	T
I (1878–1887)	130.39	81.31	77.49	106.02	101.04	124.41
II (1883–1892)	125.06	86.56	83.63	108.19	104.59	125.53
III (1888–1897)	128.10	87.86	84.72	112.55	108.53	124.24
IV (1893–1902)	129.23	89.65	85.99	115.85	111.12	125.50
V (1898–1907)	122.28	96.11	95.85	117.52	117.21	129.80
VI (1903–1912)	111.11	97.82	102.71	108.69	114.12	125.37
VII (1908–1917)	101.40	95.27	92.60	96.60	93.90	107.36
VIII (1913–1922)	97.98	107.62	97.85	105.45	95.87	101.38
IX (1918–1927)	100.87	122.49	116.62	123.56	117.63	108.47
X (1923–1932)	96.70	111.01	117.78	107.35	113.89	104.78

(1) Relative price index=average export price index÷general price index
(2) Disparity index=actual exchange rate index÷equilibrium exchange rate index
Please notice that this disparity index 100.00 does not imply that actual exchange rate is strictly equal to equilibrium exchange rate, but there is no disparity relative to that in base year, 1913. However fortunately there is almost no disparity in exchange rate in 1913, when actual sterling exchange rate is 100.15%, and dollar rate 100.77%, of equilibrium exchange rate respectively.

Source: (1) average export price index is that of Tōyōkeizai Shimpo Sha; (2) General price index is that of the Bank of Japan; (3) equilibrium exchange rate is taken from: "Monthly Movements in General Price, Exchange Rate, Purchasing Power Parity and Foreign Trade during recent 50 Years" (in Japanese) Nagoya Commercial College, Industrial Research Bulletin, Vol. XVII, No. 3.

unfavourable terms of trade in the latter half by the lower price level. The former the gains in the price level of export commodities are greater than the losses in the exchange rates, and the latter the gains in the exchange rates are smaller than the losses in the price level of export commodities. Thus the movement of our terms of trade is brought about by the relative changes in the two factors, the price level of export commodities and the exchange rates. Then, let us proceed to analyse the conditions underlying the movement of these two factors respectively.

The movement of the relative prices is easily explained by the changes in the composition by groups of our export commodities. In the first half of the periods the relative prices are high, and in the latter low. This change is brought about by the rise in the relative importance of manufactured goods among our exports. Table 3 shows the relative price indices of three groups of our exports. The statistical data cover only period VI throught period X. Before period VI the data are not available. All these indices show downward trend. But the rates of decrease are different among them. The relative prices of finished goods decline most severely, those of raw materials also decline but only slightly. Thus it is clear that the more important become our exports of finished manufactured goods, the more severely decline the relative price level of our export commodities.

Table 3 Relative prices and terms of trade

1913=100.00

	Relative price indices			Terms of trade		
	raw materials	semifinished goods	finished goods	raw materials	semi-finished goods	finished goods
VI (1903–1912)	97	110	112	109	130	143
VII (1908–1917)	102	98	95	113	95	97
VIII (1913–1922)	99	96	89	122	89	70
IX (1918–1927)	92	101	92	112	108	71
X (1923–1932)	90	95	89	107	116	62

Original data are taken from: *Nihon Boeki Seiran* (Oriental Economist Co.)

The terms of trade by groups also show similar movement. The same explanation may be applied to the movement of the terms of trade. The relative rise in the exports of finished goods causes the downward movement of the general terms of trade.

The movement of the exchange rates may be explained in terms of the balance of trade or some other institutional factors relating to monetary system. From period I through period IV the relative level of our exchange rates is exceptionally low. The average actual rate is about 15% lower than the equilibrium rate. From period V through period VII the relative level is still low, but the gap between the actual rate and the equilibrium rate becomes smaller. It is clear that the end of the nineteenth century makes a turning point in the movement of our exchange rate. What is the cause of this marked change? Our balance of trade also changes its behaviour around this period. But its change is in inverse direction, that is, from the favourable balance to heavy deficit. While our balance of trade is comparatively favourable, our exchange rate is low, and our balance becoming unfavourable, our exchange rate begins to move upward. Thus, the movement of our exchange rate can not be explained adequately in terms of our balance of trade. We must seek another way of explanation.

The major factors determining the behaviour of our exchange rate is the changes in our monetary system. In 1871 the Meiji government enacted a new Monetary Law and adopted formally the gold standard. But, because of the heavy drain of gold, it was difficult for the government to maintain the gold standard. Our official exchange rate of gold to silver was considerably lower than the ratio prevailing in the international market. The result was obvious enough—gold flowed out and silver flowed in. In 1878 the government had to allow the silver dollar to circulate in domestic, as well as foreign, trade market. Since then our monetary system became de facto silver standard. Thus the price ratio of silver to gold became a major factor determining the level of our exchange rate. In the end of eighteen sixties the price ratio was 1 to 15, in 1891 1 to 20.9 and in 1894 1 to 32.5. The relative price of silver declined severely. This made our exchange rate unfavourable. In 1897 our monetary system returned to the gold standard and this time it was, in fact, maintained. This is the main cause for the recovery of our exchange rate around the end of the century.

During the two decades, ranging from the end of the Sino-Japanese War to the outbreak of the World War I, Japan executed vigourously the industrial revolution. Our imports of various types of machineries and raw materials increased markedly and, in spite of the also rapid growth in exports, the balance of trade recorded a heavy deficit. To maintain the exchange rate the government planned, and succeeded in, the importation of foreign capital. This is the only one period when Japan imported foreign capital in a substantial amount before the World War II. Hardly had the industrial revolution been completed when the World War I broke out, and an unprecedented large export surplus was recorded. After the War the exports declined and the balance of trade became again unfavourable. But the exchange rate was maintained high through spending up the gold reserve accumulated during the War. Thus the movement in exchange rate is closely related to the monetary policy of our government.

II. *Terms of Trade and the Elasticities of Exports and Imports*

Are these unfavourable terms of trade the necessary prices we must pay in developing our foreign trade? This is a question we will try to answer in this section.

The behaviour in the terms of trade may be interpreted in terms of three economic factors, that is, the comparative growth rate of national income, the income elasticities of reciprocal demand and the price elasticities of imports and exports. Thus the unfavourable terms of trade may be caused by three factors. The first is the comparatively high growth rate of national income. The second is the comparatively high income elasticity of import demand relative to that of foreign countries. The third is the comparatively low price elasticity of imports relative to that of exports. The first two of these coefficients must be evaluated comparatively in relation to those in foreign countries. This makes our analysis extremely difficult. We can measure these two coefficients relating to our country. But, to evaluate these coefficients, we must also measure the weighted average of these figures relating to various foreign countries which enter into trade relationship with us. The shares of these countries in our foreign trade change from period to period. This makes our measurement of the weighted avarege coefficients almost impossible. As to the first two coefficients we confine ourselves mainly to the measurement of Japanese coefficients. In interpreting the figures obtained, we will rely on some simplifying assumptions and endeavour to state, as a first approximation, rather tentative judgments. As to the third coefficient the task is much easier to manage. The evaluation required here is that of the comparative level of our price elasticities of imports and exports. These elasticities are not difficult to measure. And the comparative evaluaton is also easy. Our interpretation relating to this third factor is, I hope, more reliable than the former ones.

Growth rate of national income and income elasticities

The foreign countries, which have trade relationship with us, may roughly be divided into two groups. The one is the group of countries, the trading shares of which are declining through time, and the other is the group gaining in importance among our foreign trade. Most European countries belong to the first group and Asian and American countries to the second group. Around the end of the nineteenth century Europe, Asia and America share almost equally among them our total value of foreign trade. But since then European countries decline, and Asian and American countries gain, in the shares of our foreign trade. In this section the first declining group is represented by the United Kingdom and the second by the United States of America.

Table 4 shows the growth rates of national income of three countries, that is, the United Kingdom, the United States of America and Japan. From this table we may obtain two informations. (1) Our growth rate is comparatively high. (2) After the World War I our growth rate rises relatively to those of the other two countries. This upward trend in our growth rate may be one of the factors causing the downward movement in our terms of trade.

Table 4 Growth rates of national income
—United Kingdom, United States of America and Japan

	United Kingdom	United States	Japan		
	g_1	g_2	g_3	g_3/g_1	g_3/g_2
Period A	2.4%	3.5%	3.0%	1.25	0.86
Period B	0.5	2.5	3.9	7.80	1.56

(1) Period A is 1877–85 through 1911–13 for United Kingdom, 1879–88 through 1909–18 for U. S. A. and 1878–87 through 1908–17 for Japan
(2) Period B is 1911–13 through 1924–29 for United Kingdom, 1909–18 through 1924–33 for U.S.A. and 1908–17 through 1923–32 for Japan
(3) Growth rates are average annual rates.
Source: U.K. from Colin Clark, *Conditions of Economic Progress*, U. S. A. from Simon Kuznets, *National Income, a Summary of Finding*, and Japan from Yūzo Yamada ed. *Japanese National Income Estimates* (written in Japanese)

Next we will measure our income elasticity coefficient of import demand. The results are: 1.97 for the period 1894 through 1915, 1.16 for 1919 through 1928 and 0.93 for 1928 through 1937. These results are obtained from the following equations.

(1) For the period 1894–1915 we analyse the relation between the three years moving averages of logarithmic series of the volume of imports x_1, and those of real income x_2, and obtain the regression equation

$$\log x_1 = 1.9705 \log x_2 - 1.9289$$
$$r^2 = 0.7459$$

(2) For the period 1919–1928 we analyse the relation between the logarithmic annual series of the volume of imports x_1, and those of real income x_2, and obtain the equation

$$\log x_1 = 1.1622 \log x_2 - 0.2963$$
$$r^2 = 0.8923$$

(3) For the period 1928–1937

$$\log x_1 = 0.925 \log x_2 - 1.9289$$
$$r^2 = 0.864$$

Our income elasticities of import demand are considerably high. These high income elasticity coefficients, together with the high growth rate of national income, bring about the high rates of increase in import demand. Thus these two factors may be used to explain why the level of our terms of trade are generally low. But this way of explanation is not satisfactory for our purpose. Because it can not explain why our terms of trade move downward. This peculiar behaviour of our terms of trade is what we endeavour to explain. The income elasticity coefficients move downward from the eighteen nineties through the nineteen thirties, and the terms of trade also decline during this period. How can we explain the relation between these two movements? One possible explanation is that the decline in the value of elasticity coefficients is more than amply counterbalanced by the rise in the growth rate of national income. But unfortunately this is not true. The former being greater than the latter, the growth rate of our import demand also shifts downward. Thus, unless the downward shift in the growth rate of the import demand among foreign countries is more severe than ours, we cannot interprete the downward movement of our terms of trade in terms of import demand. The comparison in the movement of import demand becomes our next task. This problem is also difficult for us to solve satisfactorily. We have to resort to an easy and rough method. Let us confine ourselves to the comparison between the United States of America and Japan.

The import volume index x in the United States increase annually 1.1% from 1919 through 1933, as is indicated by the equation

$$\log x = 2.1662 + 0.0047(t - 1926)$$

During the same period the import volume index x in Japan shows the following tendency

$$\log x = 2.2305 + 0.0136(t - 1926)$$

Japanese growth rate is 3.2%, which is almost three times as high as in the United States of America. Of course, these are the growth rate of the quantities imported, but not of the import demand schedules. But the difference in the figures between two countries is so large that we may be allowed to infer from this the relative movement in import demand. Japanese growth rate in import demand has shown a downward movement after the World War I, but, compared with the rate in the United States, it is still high. And the United States is one of the most rapidly advancing countries. So it is probable that the growth rate of our import demand is comparatively high relative to those among the foreign countries which have trade relationship with us. This comparative highness in the growth rate of our import demand may be one of the major causes for our declining tendency in the terms of trade.

Price elasticities of imports and exports

Next we will examine the values of price elasticities of imports and exports. If the elasticity coefficient of imports is smaller than that of exports, we may safely infer that the terms of trade are likey to become unfavourable. Measuring the price elasticities of imports and exports, we obtain the following results.

(1) For the period 1894–1915 we analyse the relation between the three years moving averages of logarithmic series of the volume of imports x_1, those of the volume of exports x_2, and those of the terms of trade x_3, and obtain the equation

$$\log x_1 = 0.8129 \log x_2 + 0.7568 \log x_3 - 1.1834$$
$$R^2 = 0.9661$$

The price elasticity coefficient of imports is 0.7568. Reversing the variables, we obtain

$$\log x_2 = 1.1884 \log x_1 - 1.0000 \log x_3 + 1.6738$$
$$R^2 = 0.9803$$

The price elasticity coefficient of exports is 1.0000.

In this period the coefficient of import is lower than that of exports. Our import demand is less elastic than our export demand to the changes in the terms of trade. This period roughly covers the above mentioned period IV through VII when our terms of trade index is still high. These comparatively favourable terms of trade suppress the volume of exports to the lower level than that of imports (see the table 1)

(2) For the period 1919–28 we analyse the relation between the logarithmic annual series of these three variables and obtain the equation

$$\log x_1 = 0.8238 \log x_2 + 1.0798 \log x_3 - 1.7492$$
$$R^2 = 0.8954$$

The price elasticity coefficient is 1.0798. Reversing the variables, we obtain

$$\log x_2 = 1.0819 \log x_1 - 1.2642 \log x_3 + 2.3197$$
$$R^2 = 0.9084$$

The coefficient of exports is 1.2642, which is again higher than that of imports. This period correspond to the above mentioned period IX, when our terms of trade index becomes lower than those in period IV through VII. In spite of the unfavourable terms of trade the volume of imports index is larger than the volume of exports index.

(3) For the period 1928–1938 we obtain

$$\log x_1 = 0.5714 \log x_2 + 0.2857 \log x_3 + 0.2653$$
$$R^2 = 0.8914$$
$$\log x_2 = 0.9648 \log x_1 - 0.9377 \log x_3 + 1.9752$$
$$R^2 = 0.9680$$

The coefficient of imports is 0.2857 and that of exports 0.9377. Our imports become extremely inelastic to the decline in the terms of trade while our exports are still relatively elastic. This period covers the time of the Great Depression and Recovery. Please notice that our exchange rate severely declined in 1932 through the suspension of gold remittance and the terms of trade also become quite unfavourable. This abrupt decline in exchange rate is not so effective in checking our imports, but considerably strengthens the competitive power of our export commodities. Our exports expand rapidly and precipitate our recovery from the Great Depression.

Compared with the elasticity coefficient of exports, that of imports is always lower and the difference between them becomes larger from nineteen twenties through nineteen thirties. This declining tendency in the relative value of import elasticity coincides with the same tendency in the terms of trade. Thus the movement in the terms of trade can be expained in terms of the relative value of price elasticities. This approach is more satisfactory than the former ones.

III. *Terms of Trade, Imports of Raw Materials and Exports of Finished Manufactured Goods*

In section I we have indicated that the rise in the importance of finished goods among our exports may be one of the major factors making our terms of trade unfavourable. In this section we will further pursue this relation.

Figure 2 shows the movements of the ouptut of manufacture (excluding that of domestic industry), the exports of finished goods, the imports of raw materials and the terms of trade for the period 1903 through 1931. Please notice that the terms of trade here is not the general terms of trade, but that of the exports of finished goods relative to the imports of raw materials; and that they are plotted inversely in the graph, so that the rise in curve implies the drop in the index.

From this figure we obtain two important informations.

(1) Three indices—the output of manufacture, the exports of finished goods and the imports of raw materials—show similar upward trend. The average annual rates of growth are 7.0% for the output of manufacture, 6.5% for the exports of finished goods and 6.4% for the imports of raw materials.

(2) While the output of manufacture and the imports of raw materials increase rather smoothly, the exports of finished goods show a considerable fluctuation, the cycle of which is similar to that of the terms of trade. The behaviour of exported finished goods curve corresponds to that of inversed curve of terms of trade. From this we may infer that the imports of raw materials are quite in-

elastic, but the exports of finished goods are rather elastic, to changes in the terms of trade.

The movement in the output of manufacture may be duely explained in terms of the imports of raw materials. We analyse the correlation between these two indices and obtain the equation

$$\log m = 1.0748 \log r - 0.0779$$
$$r^2 = 0.9469, \quad r = 0.982$$

where m is the index number of the output of manufacture and r is that of imports of raw materials. The elasticity of output is 1.075. 10% increase in the imports of raw materials induces normally 10.75% rise in the output.

What, then, is the relation between the output of manufacture and the exports of finished goods? The next equation answers this question.

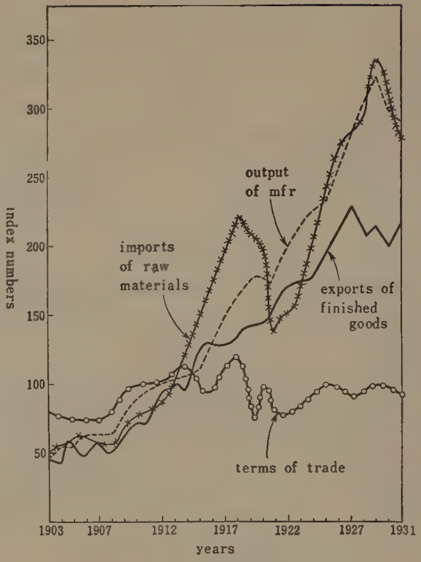

Figure 2 Output of Manufactures, Volume of Trade and Terms of Trade

$$\log f = 0.0338 + 0.9858 \log m$$
$$r^2 = 0.9333, \quad r = 0.9627$$

f is the index number of the exports of finished goods. The elasticity of exports is 0.986. 10% increase in the output of manufacture induces normally 9.8% rise in the exports of finished goods. Thus 10% increase in the imports of raw materials induces 10.6% rise in the exports of finished goods. If the terms of trade play no parts in this relation, Japanese economy can grow rapidly through the increase in the imports of raw materials while keeping her balance of trade stable. But unfortunately this is not true. The terms of trade do play her part. We have already noticed in the figure 2 that there is a similar cycle in the terms of trade and the exports of finished goods. Analysing this relation, we obtain the equation

$$\log f = 0.9435 \log m - 0.3692 \log t - 0.0779$$
$$R^2 = 0.9435, \qquad R = 0.9714$$

where t is the index number of the terms of trade. The price elasticity of our exports of finished goods is 0.36. The value of elasticity is rather small. Nevertheless it is clear that the rise in the terms of trade checks the increase in our exports of finished goods.

In order to increase our output of manufacture it is inevitable for us to increase our imports of raw materials, and in order to increase our exports of manufactured goods it is also necessary for us to take the unfavourable terms of trade.

Its main results are two. One is unfavourable balance of trade. Another is economic fluctuation. As to the former we will analyse in the later sections. As to the latter we may notice the following. Production, real national income and the volume of imports grow almost smoothly in Japanese economy. Nevertheless our national economy has experienced economic fluctuations, the major cause of which may be found in the changes in our exports related to the instability in the behaviour of our price movement.

IV. *Terms of Trade and Gains from Trade*

Our terms of trade have moved downward in the course of development in foreign trade. If the terms of trade are the adequate criterion for evaluating the gains or losses from trade, our foreign trade may be deemed to have incurred considerable losses upon our national economy. We must investigate further whether such a judgment is valid or not.

The unfavourable terms of trade imply ceteris paribus losses from trade. But in the dynamic process of trade other things do not remain constant. One of the most important factors among the "other things" is, of course, the comparative costs. We will take this factor out from the box of ceteris paribus.

Theoretically speaking, the terms of trade T is, under equilibrium condition, related to the average comparative costs C through the equation

$$T=\eta C$$

where η is the elasticity of the comparative costs as to the increase in output. The terms of trade correspond to the marginal comparative costs, which is, in turn, no less than the product of the average comparative costs and the said elasticity coefficient. If this coefficient is equal to unity, we can not obtain any gains from trade. But as the competition among trading countries is not perfect, this coefficient is ordinarily greater than unity and the gains from trade become obtainable. We may safely assume that this elasticity coefficient is an indicator of the gains from trade. Let us call this coefficient the degree of gains from trade. If the comparative costs schedule remains stable and only the reciprocal demand schedule shifts to right, the terms of trade become unfavourable and the degree of gains smaller. Under such conditions the declining terms of trade imply the narrowing margin in gains from trade. Supposing that both the comparative costs schedule and reciprocal demand schedule shift to right, the result is rather complicated. In this case the terms of trade may become unfavourable, but we cannot judge from this movement alone whether the degree of gains becomes smaller or not. An additional information is necessary. That is, we must evaluate the comparative shift in these two schedules.

In section II we have analysed the factors causing the movement in terms of trade. Among the three factors we may take out the comparative growth rate of national income as the strategic shift variable relating to the reciprocal demand schedule. Then, what is the shift variable in comparative costs schedule?

The comparative growth rate of productivity is that variable. As in the case of the factors relating to the terms of trade, the modifying adjective "comparative" attached to the variables makes our measurement of them extremely difficult. The measurement of the comparative growth rate of productivity is no less difficult than that of national income. Here again, let me allow the placing of the measurement in foreign countries into the ceteris paribus closet, and confine myself to the comparison in two shift variables relating to Japanese economy. The variables treated here are the growth rate of national income and that of labour productivity in manufacturing industry. The former is related to our import demand schedule and the latter to our costs schedule in export industry. This is only a first and rough approximation. But we are not certain whether any second and better approximation lies within our means.

Relying upon such simplyfying assumptions, we proceed to state the following relationship as the working hypothesis. If the growth rate of national income is greater than that of labour productivity and at the same time the terms of trade decline, it is almost impossible to maintain gains from trade. Under such conditions the losses in terms of trade may not be counterbalanced by the rise in productivity among export industry. But if the labour productivity grows more rapidly than the national income, the gains from trade can be maintained in spite of unfavourable terms of trade.

Table 5 Growth rate of national income and that of labour productivity

unit=%

	Growth rate of		Terms of trade
	national income	per capita income in mfr.	
1878— 87→1883— 92	5.1%	△ 0.4%	0.2%
1883— 92→1888— 97	3.6	0.9	△ 0.2
1888— 97→1893–1902	2.1	0.8	0.2
1893–1902→1898–1907	0.9	△ 2.1	0.6
1898–1907→1903— 12	2.1	△ 0.6	△ 0.7
1903— 12→1908— 17	3.2	3.7	△ 3.1
1908— 17→1913— 22	4.0	4.0	△ 1.1
1913— 22→1918— 27	3.8	4.7	1.4
1918— 27→1923— 32	4.4	4.1	△ 0.7

Source: (1) income data from: Y. Yamada ed. *Japanese National Income Estimates* (written in Japanese)
(2) terms of trade from; Tōyōkeizai Shimpo Sha, *Boeki Seiran* (written in Japanese)

Table 5 shows these two shift variables together with the rate of variation in our terms of trade. In section I we have indicated that our terms of trade remain almost stable in the first half of the whole periods under consideration and then become unfavourable in the latter half. From Table 5 it is clear that while in the first half the national income grows more rapidly than the labour productivity in manufacture, this relation is reversed in the latter half. The rise in productivity becomes more pronounced than the growth rate of national income, and the terms of trade begin to decline markedly. Thus the period of declining terms of trade coincides with that of rising productivity. This is not a mere coincidence. We may be allowed to state that the relative shift in the movement of our national income induces the terms of trade to decline, but the losses in terms of trade is more than amply compensated by the gains in productivity in manufacturing industry. Of course this statement is only tentative and open to questions. But we may at least safely say this much. In spite of unfavourable terms of trade Japanese economy gathers gains from trade through the improvement in productivity.

V. *Terms of Trade and Wage Rate*

The unfavourable terms of trade are, of course, not agreeable things. They are the burdens Japanese economy has to bear. Who bears these burdens? It is commonly believed that they are mainly born by labourers with low wages. Let us call this view the cheap labour theory. Then how far is this theory verified by the facts?

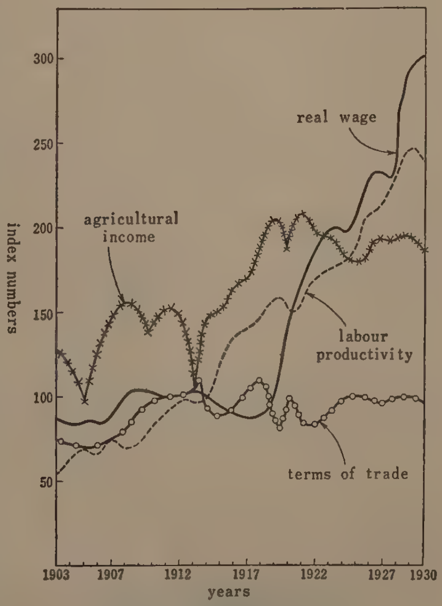

Figure 3 Real Wage, Labour Productivity and Agr. Income

Figure 3 shows the movements in the terms of trade, labour productivity of factory industry, real wage rate and per capita real agricultural income in terms of index numbers (with 1913 as the base year) in the course of 27 years, 1903 through 1930. Please notice that here again, as in section III, the terms of trade are that of finished goods exported relative to raw material imported and plotted inversely in the graph.

The real wage rate of so called cheap labour rises at the average annual rate of 4.8% during this period. This rate of increase is undoubtedly high. But compared to the rate of increase in the labour productivity in factory industry it is lower. The labour productivity rises annually at the rate of 5.3%. Comparatively speaking Japanese labour is cheap. But this does not mean that the real wage rate is tied down to the minumum level of subsistence.

Analysing the relation between the labour productivity and the real wage rate with one year lag, we obtain the equation

$$\log w=0.3306+0.8552\log p$$

$$r^2=0.7252, \quad r=0.8516$$

where w is the real wage rate index and p the labour productivity index. The elasticity coefficient of real wage rate is 0.855. 10% rise in the labour productivity induces with one year lag 8.6% up in the real wage rate. Let us add one more variable to the equation. A variable to be added is, of course, the terms of trade index. The result is shown by the equation

$$\log w=0.9367+0.9226\log p+0.3824\log t$$

$$R^2=0.7486, \qquad R=0.8653$$

where t is the terms of trade index. The value of productivity elasticity coefficient of real wage rate rises somewhat and becomes 0.923. This implies that if the terms of trade remain constant, 10% rise in productivity induces 9.2% up in real wage rate. But if the terms of trade decline, the real wage rate is depressed. The relevant elasticity coefficient is 0.382. 10% decline in the terms of trade induces 3.8% decrease in the real wage rate. This is the real meaning contained in the cheap labour theory.

During this period the labour forces employed in factories grow at the annual rate of 2%. This rate is greater than the population growth rate. Population grows at the annual rate of 1.3%. How can the capitalists employ the increasing number of labourers with comparatively low wages?

Farm population supplies the additional labour forces with low wages. The low level of living among them depresses their supply price of labour to urban factories.

Per capita real agricultural income rises slowly at the annual rate of 0.3% during this period. Analysing the relation between the real wage rate of factory labourers and per capita real agricultural income, we obtain the equation

$$\log a=1.61833+0.2808\log w$$

$$r=0.6775$$

where a is the per capita real agricultural income index. The relevant elasticity coefficient is 0.281. 10% rise in the real wage rate in urban area induces only 3% up in the real agricultural income in rural area. Thus rise in real wage rates enlarges the gap between the levels of living in urban and rural areas. This is the reason why labour forces always move from rural to urban area whenever job opportunities are offered there.

The story of the unfavourable terms of trade leads us to the door of the cottage of small peasants. We are tempted to open the door and interview our ordinary peasants. But we must return to the statistical measurement and ask what is the multiplier effect of our foreign trade.

JAPANESE FOREIGN TRADE AND ECONOMIC GROWTH: WITH SPECIAL REFERENCE TO THE TERMS OF TRADE*

By Kiyoshi Kojima

Assistant Professor of International Economics

I. *Problem*

With respect to the role of foreign trade in the economic growth of Japan, there is a stereotyped vicious circle theory, which is recurrently reproduced without apparent consideration of its origin and development. Most Marxian economists in Japan, consciously or unconsciously, take this stereotyped point of view. Professor Shinohara, who is not a Marxian economist, recently presented an interesting modern version of the stereotype in an effort to explain the process of Japanese economic development prior to World War II.[1] The substance of this stereotyped vicious circle theory of Japanese economic development may be summarised as follows:

(a) On the supply or cost-price structure side, the inflow of cheap rice (particularly from the former colonies, Korea and Formosa) permitted a lower cost of living and general wage level; the inflow of cheap rice forced primary industry to shrink relative to other sectors and to provide secondary industry with a reservoir of cheap labor; the abundant supply of cheap labor from the agricultural sector reduced the cost of manufactures, particularly those with high labor content, resulting in a relatively small labor share and fairly high capital share; the low cost of manufactures with high labor content made exports expand rapidly; the high capital share sustained capital accumulation and industrialization at a rapid rate which was far above that in foreign countries.

(b) On the demand side, the low wage level and low labor share made domestic demand for the quickly expanding output of manufactured goods so small that an outlet for them had to be sought abroad; in order to force exports to increase at a rapid rate, the terms of trade had to be deteriorated through strategic lowering of export prices; a greater rate of industrial growth than that of foreign countries tended to create a latent deficit in the balance of trade, which in turn necessitated a further deterioration in the terms of trade[2]; the burden of the deterioration in the terms of trade was wholly shifted to laborers and farmers, for whom there remained little possibility of raising their real income and level of living.

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* I am indebted to Professors J. Richard Huber, Alan Gleason, Miyohei Shinohara, Masahiro Tatemoto, Kiyoshi Matsui, Kaname Akamatsu for their helpful comments on an earlier draft written in Japanese. Such defects as remain in the paper are, of course, my own responsibility.

[1] Professor Miyohei Shinohara has written several articles on this topic. A good summary of his own is presented in his essay, "The Contribution of Foreign Trade to the Long-Run Development of Japanese Economy," *Kokusai Keizai* (in Japanese), ed. by the Japan Society of International Economics, No. 6, May 1955, pp. 60–78.

Thus the vicious circle may be summarised as a set of causal relations between cheap labor, the narrowness of the domestic market in the face of a rapid rate of capital accumulation, and the need for an export drive, which required in turn cheap labor. According to the stereotype view, the Japanese economy, over the long run, grew rapidly merely in quantity of population, capital, production and foreign trade and this quantitative expansion did not contribute very much to improving the real income and welfare of farmers and laborers.[3] It is understood that foreign trade was necessary for the rapid quantitative expansion, but it was regarded as the very cause of the vicious circle because of an inherent tendency toward deterioration in the terms of trade.

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[2] In a two country model, the change in country 1's trade balance is shown by the following formula:

$$\frac{dB_1}{dt}=(\eta_1+\eta_2-1)(r_2-r_1)+\epsilon_2 R_2-\epsilon_1 R_1$$

where B_1 stands for the balance of trade of country 1, η_1 and η_2 for the price elasticity of the import-demands of countries 1 and 2, ϵ_1 and ϵ_2 for the income elasticity of their import-demands, r_1 and r_2 for the rates of change through time in the price levels of the exports of the two countries, and R_1 and R_2 for the rate of change through time in the national income of the respective countries.

This formula was expounded by Harry Johnson, but Shinohara also independently presented essentially the same one. See, H. G. Johnson, "Increasing Productivity, Income and Price Trends, and the Trade Balance," *Economic Journal*, Sept. 1954, pp. 466–467. Miyohei Shinohara, *op. cit.*, pp. 61–62.

According to the formula, supposing that ϵ_1 equals ϵ_2 and that $\eta_1+\eta_2$ is larger than unity, then if R_1 is larger than R_2, the trade balance of country 1 tends to be a deficit balance. In order to maintain an equality between exports and imports, (r_2-r_1) should be positive, or, in other words, the terms of trade should change against country 1. The degree of the deterioration in the terms of trade depends upon the amount of potential deficit and the value of $\eta_1+\eta_2$. Such reasoning as the above is the basis on which Professor Shinohara contends that the Japanese terms of trade had a long-run tendency toward deterioration.

However, the facts of historical development make Professor Shinohara's use of the formula in this case highly doubtful. The country 2 mentioned in the formula represents a group of countries with which Japan (country 1) trades. The formula is applicable only if the group of trading countries remains unchanged. Actually Japan's trading area has expanded rapidly through time. Consequently, even if the rate of economic growth of each trading country is lower than that of Japan, the multiplication of trading countries may result in an increase in their aggregate import-demands for Japanese exports sufficient to meet an increase in Japanese import-demands for their exports.

[3] It must be taken into account that a huge increase of material output was needed merely to maintain the same real income per capita for the rapidly growing population.

I seriously doubt,[4] however, the truth of the contention of Professor Shinohara and others that the terms of trade of Japan showed a long-run tendency to deteriorate, and that the vicious circle had persistently occurred since our industrialization around 1890. It seems to me that their generalization is too sweeping. In this paper, I shall try to show first that the deterioration in the terms of trade occurred only in the two periods of rapid transformation or of structural change in 1905–13 and in 1932–37. Secondly, an attempt will be made to show through analysis of the unique features of various key indices and of the balance of payments, that the vicious circle, as described above, was confined to the period of 1932–37. Thirdly, it will be shown by an analysis of the gains from trade that, except for the vicious circle period, our foreign trade has contributed much toward raising the real wage level. My investigation will be confined mainly to the analysis of the terms of trade[5] and related matters during the period from 1890 to 1937.

II. *Commodity Terms of Trade*

Chart 1 depicts an index of the Japanese commodity terms of trade (1913 =100), in which the Oriental Economist series, 1873–1928, is connected with the Yokohama Specie Bank series, 1928–1938. Recalculation and some revisions may be needed,[6] but in this paper those series are used for the time being without any modification.

What trend one may interpret from the chart is a problem. Some may

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[4] Lockwood's view has led to alarm and repercussions in Japan particularly among the stereotype theorists. In comparing the indices of manufacturing production and exports of manufactures to foreign countries, he states that "About all one can say is that their [the two indices'] behavior also fails to bear out the notion that Japanese industry developed mainly to serve a foreign market, or that it found its major stimulus in export opportunities." "The home demand for Japanese manufactures thus absorbed continuously most of the output of industry, as well as primary products and services. It developed *pari passu* with the expansion of overseas trade." William W. Lockwood, *The Economic Development of Japan, Growth and Structural Change 1868–1938*, Oxford University Press, 1955, p. 369.

At another place (p. 309) he says, "the idea that the drive for foreign markets was *the* motor force of Japanese industrialization is nothing but a literary invention. It has little relationship to the facts."

[5] The several kinds of terms of trade referred to in this paper are defined as follows:

Let eP and iP stand for the price of export and import respectively, and let suffix 0 and 1 represent the base and current years. The (net) commodity terms of trade will be

$$\frac{eP_1}{eP_0} \Big/ \frac{iP_1}{iP_0}.$$

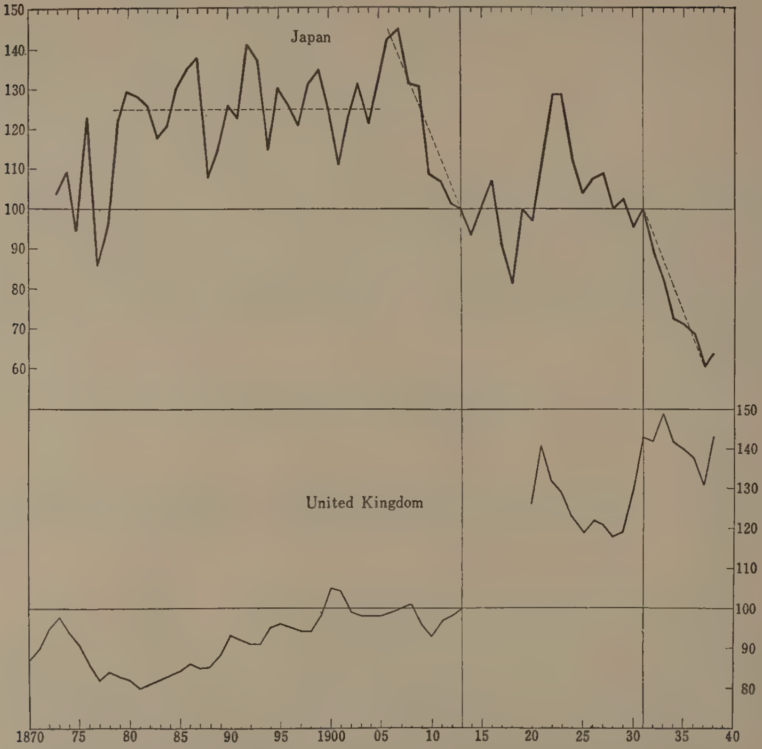
Let eQ stand for the export volume, then the income terms of trade will be

$$\left(\frac{eP_1}{eP_0} \cdot \frac{eQ_1}{eQ_0}\right) \Big/ \frac{iP_1}{iP_0}.$$

Let eF stand for the unit cost of export in terms of labor input, then the single factoral terms of trade will be $\frac{eP_1}{eP_0} \Big/ \left(\frac{iP_1}{iP_0} \cdot \frac{eF_1}{eF_0}\right)$, and the factoral income terms of trade will be $\left(\frac{eP_1}{eP_0} \cdot \frac{eQ_1}{eQ_0}\right) \Big/ \left(\frac{iP_1}{iP_0} \cdot \frac{eF_1}{eF_0}\right)$.

[6] Professor J. Richard Huber is trying to revise the Japanese terms of trade figures.

Chart 1 Terms of Trade, Japan and United Kingdom 1913=100



Source: for Japan, see the Appendix of this paper; for the United Kingdom, C. P. Kindleberger, *The Terms of Trade*, 1956, pp. 12—13.

conclude that there is a long-run tendency toward deterioration in the Japanese terms of trade[7] by drawing a straight line from 1907 down to 1937. I prefer,[8] however, to infer the following step-like changes shown by dotted lines on the chart.

In Period I, 1880–1905, the terms of trade were constant at about the 125 level, although cyclical fluctuations were experienced.

In Period II, 1906–13, the terms of trade deteriorated rapidly from 142 in 1906, the second year of the Russo-Japanese War, or 145 in 1907 to 100 in 1913, the average annual rate of deterioration being 3.75%.

In Period III, 1913–31, the terms of trade were again kept fairly constant at the 100 level, although big cyclical fluctuations, particularly an unfavorable change in 1918 and quite a favorable change in 1922 and 1923, took place.

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[7] Professor Shinohara takes a view that the terms of trade deteriorated to one third of 1903 to 1937 and the deterioration prevented a deficit in the balance of payments and supported the rapid expansion of exports. Miyohei Shinohara, *op. cit.*, p. 64.

[8] Cf. William W. Lockwood, *op. cit.*, pp. 317–318.

In Period IV, 1931–1937, the terms of trade again deteriorated rapidly from 100 to 60.8, the average annual rate of deterioration being 5.8%.

Thus, we can distinguish the two periods of decline from the two periods of level trend.

The tendency of Japan's terms of trade may be compared, as shown in Chart 1, with that of the United Kingdom's, which is presented by Professor Kindleberger.[9] The comparison is obscured by the facts that, from 1870 to 1900, Japan was a primary-good exporting country while England was a highly industrialized nation, and that World War I gave rise to quite different effects on each country. It is, however, clear that no deterioration corresponding to that of the two periods of decline in Japan can be seen in England, and that, moreover, there is a sharp contrast between the two countries in the tendency of the terms of trade during 1929–38. It may be better to infer, as Professor Kindleberger shows,[1] that the English terms of trade, especially the current-account terms of trade, were kept fairly constant throughout 1870–1937. England experienced, however, a great deterioration in the terms of trade from about 1800 to 1870.[2] This is the period of decline in England, which may correspond to Japan's two successive periods of decline.

The decline in the terms of trade appears, in Japan as well as in England, in the period of rapid transformation in the composition of industries and foreign trade from agriculture to light industries and then to heavy and chemical industries. It is usual for every industry to experience three phases of growth: (i) a rising rate of growth of output, (ii) a slower rate of growth of output, and (iii) an absolute decline in output.[3] In a period of transformation, one group of industries grows up rapidly and the other group declines gradually. The growing industries reduce costs of production and prices owing to advanced equipment, the economies of scale, etc., while the declining industries experience overproduction and sell their products at very low prices, just covering their variable capital expenses. Thus, both the growing and declining industries in combination make the terms of trade deteriorate greatly. Moreover, the growing new industries usually need additional imports of capital goods and raw materials, but they are not yet able to cover the additional imports by their own exports. In order to accomplish the transformation of industrial structure, the additional imports should be covered either by foreign borrowing or by an export drive of the old declining industries. If an industry declines mainly because of a decreasing and inelastic demand abroad, then the export drive of the declining industry results in a heavy deterioration in the terms of trade.

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[9] Charles P. Kindleberger, *The Terms of Trade, A European Case Study*, The Massachusetts Institute of Technology, 1956, pp. 12–13.

[1] Charles P. Kindleberger, *ibid.*, p. 27. He refers there to the terms of trade of industrial Europe as a whole.

[2] According to Imlah, the English export price index (1880=100) fell from 414.1 in 1800 to 109.6 in 1860 and 118.7 in 1870, while the import price index fell from 202.0 to 114.3 and 115.5, and therefore the terms of trade deteriorated during the period by 50% or more. See, Albert H. Imlah, "The Terms of Trade of the United Kingdom, 1798–1913," *Journal of Economic History*, Nov. 1950, pp. 177–182. W.W. Rostow, *The Process of Economic Growth*, Norton, 1952, Chap. 9, and Appendix III.

[3] See, for example, Walther G. Hoffmann, *British Industry, 1700–1950*, translated by W. O. Henderson and W. H. Chaloner, Oxford, 1955, especially pp. 180–186. A similar idea was independently developed and verified in Japan by Professor Kaname Akamatsu, "Types in the Development of Our Imported Industries," *Shogyo Keizai Ronso*, Vol. 15, 1932, pp. 179–210, and *The Hitotsubashi Review*, Nov. 1956, pp. 68–80.

Once the growing industries reach the second phase and some balance between various industries is established, each industry expands steadily with accompanying cyclical fluctuations of output and prices due to changes in domestic and foreign demands. This is the period of balanced growth of industries, in which the terms of trade are also kept fairly stable as a trend though involving cyclical fluctuations. The fluctuation in the terms of trade during this period is governed mainly by business cycles and changes in incomes and prices abroad, while the deterioration tendency in the period of transformation stems mainly from domestic causes such as cost-saving improvements in the growing industries and the cut-throat drive toward exports in the declining industries.

It is not easy to show a clear picture of structural change in industries and foreign trade. The change in the proportion of gainful workers employed in secondary industry (shown in Table 1) reflects a rapid industrialization, firstly, in the period from 1893–97 to 1908–12 and, secondly, in the period from 1928–32 to 1938–42, and shows a fairly stable percentage in the case of secondary industry during the inter-transformation period. Table 2 shows that during the inter-transformation period, i.e. from 1919 to 1931, the percentages employed in the textile and the heavy and chemical industries relative to all manufacturing remained fairly stable, and that after 1932, the heavy and chemical industries expanded rapidly while the textile industries contracted.

Table 1 *The Percentage of Total Gainful Workers Employed in Secondary Industry*

Period	%	Period	%
1893–97	10.4	1918–22	17.1
1898–1902	11.8	1923–27	17.1
1903–07	13.2	1928–32	16.8
1908–12	14.8	1933–37	19.5
1913–17	16.4	1938–42	23.7

Source: Kazushi Ohkawa et al., *The Growth Rate of the Japanese Economy Since 1878*, Kinokuniya, Tokyo, 1957, p. 28.

It is more difficult to show a clear picture of the structural change in foreign trade, for exports or imports are so diversified and multiplied year by year that each item, particularly if recently introduced, does not amount to a large enough sum to be dealt with separately. The composition of exports in Table 3 represents a shift, first, from food and crude materials to semi-manufactures during the period

Table 2 *Gainful Workers in Textile and Heavy and Chemical Industries as a Per Cent of Total Gainful Workers in all Manufacturing Industries*

Year	Textile Industries %	Heavy and Chemical Industries %	Year	Textile Industries %	Heavy and Chemical Industries %
1909	63.4	12.2	1934	45.7	34.4
1914	62.1	15.6	1935	43.6	36.7
1919	55.0	24.8	1936	40.9	40.2
1925	53.7	25.1	1937	36.6	44.4
1928	52.2	27.9	1938	32.2	51.0
1930	53.7	24.9	1939	27.1	55.5
1931	54.6	24.6	1940	24.8	58.3
1932	52.1	27.1	1941	22.0	59.7
1933	49.8	29.2	1942	17.2	66.6

Heavy and chemical industries consist of metals, machines and chemicals.
Source: Economic Planning Board, *Data Paper on the Employment Problem*, Series No. 7, 1957.

Table 3 *Composition of Exports* (Per Cent of Total Value)

Year	Food Drink Tabacco	Crude Materials	Semi-Manufactures	Finished Manufactures	Miscellaneous
1893	20.49	10.45	40.77	24.52	3.77
1903	11.94	10.53	47.24	27.92	2.37
1913	9.83	8.12	51.87	29.22	0.96
1923	6.29	5.60	48.40	38.52	1.18
1929	7.61	4.22	42.01	44.55	1.61
1931	9.12	3.99	37.70	47.52	1.67
1937	7.8	4.2	25.7	59.8	2.5

Source: The Oriental Economist, *The Foreign Trade of Japan, A Statistical Review*, 1935, p. 450.
Ministry of Finance, *Foreign Trade Return of Japan*, 1938.

1893–1913 and, secondly, from semi-manufactures to finished manufactures during the period 1923–1937. As Table 4 may partially suggest, the expansion of exports from 1893 to 1913 took place mainly in raw silk and cotton yarns, both being classified as semi-manufactures. From 1923 to 1931 exports expanded in the line of raw silk and cotton fabrics, the latter of which accounts for the increased proportion of finished manufactures. The increased proportion of finished manufactures in 1937 as compared with 1931 is due to the expansion of cotton fabrics on the one hand, and on the other to the addition of new exportable commodities such as artificial silk, steel, medicine, chemicals, iron-manufactures, machines, shipbuilding, etc.

Table 4 *Exports of Selected Commodities as a Per Cent of the Value of Total Exports*

	Coal	Sugar Refined	Raw Silk	Silk Fabrics	Cotton Yarns	Cotton Fabrics	China Wares	Artificial Silk Fabrics	Steel	Medicine, Chemicals
1903	6.7		25.7	10.1	10.9	2.4				
1913	3.7	2.5	29.9	6.2	11.2	5.3				
1923	1.5	1.0	39.1	6.4	5.4	16.2	1.6		0.3	
1929	1.1	1.4	36.3	7.0	1.2	19.2	1.8		0.2	
1931	1.3	1.3	31.7	3.8	0.8	17.7	1.7	3.6	0.6	2.4
1936	0.4	0.8	15.8	3.1	1.5	20.2	1.5	5.2	2.8	3.2
1937	0.4	0.6	14.6	2.6	1.4	18.3	1.5	5.7		3.0

Source: The same as Table 3.

I cannot agree with the view that the terms of trade in Japan showed a persistent tendency to decline over the long run. The terms of trade in Japan show, as I have depicted above, clearly distinguishable periods of level trend and decline, and consequently they do not support the sweeping generalization of a steady long-run deterioration. Moreover, from the technical point of view of the calculation and statistical significance of the terms of trade,[4] a long-run trend might have no validity, particularly when an economy grows so quickly and both imports and exports change so greatly in character as was the case in Japan.[5]

I have endeavored to show that the two periods I have defined as periods of decline in the terms of trade were unique periods of rapid transformation in the structure of Japanese industry and trade. In addition, I have pointed out theoretical and historical relations between the structural transformation and the deterioration in the terms of trade. In order to know whether or not the deterioration in the terms of trade during the periods of transformation was the result of the vicious circle mechanism, it is necessary to examine further the extent to which export drives actually took place, the balance of payments difficulties, and changes in the cost-price structure of industries. These examinations will be made successively in the following sections.

III. *Were Japanese Exports Driven?*

The Japanese economists who adhere to the vicious circle stereotype claim that by deteriorating the terms of trade strategically, the Japanese economy has driven exports abroad because of the narrowness of the domestic market. Foreigners also condemn the rapid expansion of our exports, particularly in the

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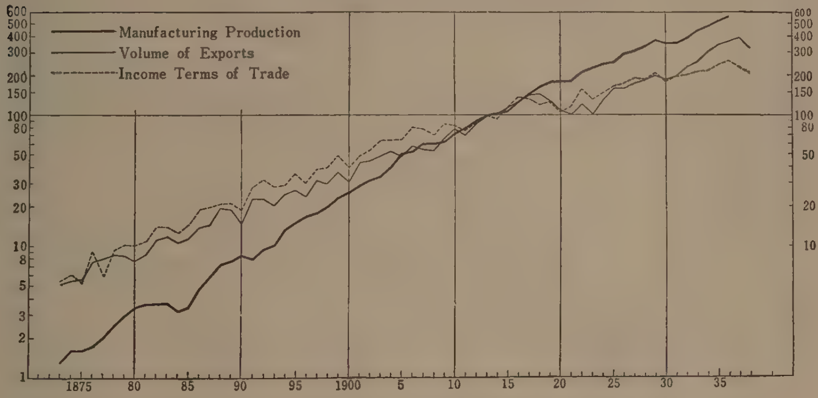
[4] Many cautions needed are suggested by Robert E. Baldwin, "Secular Movements in the Terms of Trade," *American Economic Review*, May 1955, pp. 259–269.

[5] See, William W. Lockwood, *op. cit.*, p. 317.

1930's, in the name of "exchange dumping" or "social dumping." It is of course not easy to prove whether Japanese exports were driven or not, but it will be shown that there was a clear difference between the period of level trend, 1913–31, and the period of decline in the terms of trade during the 1930's.

Firstly, Chart 2 depicts the manufacturing production (Nagoya series),[6] the volume of exports[7] and the income terms of trade. Since the manufacturing production index is considerably under-estimated for early periods, 1905 may be a good starting year for comparison purposes. In 1905–1917 or 1918, both the manufacturing production and the export volume indices rose steadily together at a rapid rate, although the latter oscillated a little more widely. In the post-war depression, 1919–21, and in 1923, the year of the great earthquake, the growth of manufacturing production was arrested, while exports declined, and a wide gap between the two indices appeared. Again from 1922 to 1929, except 1923, both indices rose rapidly in parallel fashion, a wider fluctuation being experienced in the latter. After a decline of both indices during the world economic crisis, both increased rapidly following 1931, but here exports expanded not in parallel fashion but faster than manufacturing production. This was a unique feature of the 1930's.

Chart 2 Indices of Manufacturing Production and Volume of Exports, and Income Terms of Trade 1873—1938 (1913=100)



Source: Appendix

The difference between the volume of exports and the income terms of trade accounts for the change in the commodity terms of trade. Up to 1913 the income terms of trade were above the export volume index, for the commodity terms of trade were kept more favorable than in 1913, the base year. Between 1913 and 1931, the income terms of trade were occasionally above and sometimes below the export volume index due to cyclical fluctuations in the commodity terms of trade. From 1932 to 1937, the income terms of trade diverged widely below the export volume index, and this was obviously brought about by a big deterioration in the commodity terms of trade. Such a growing divergence is seen only in the 1930's. The difference between the degree of the correlation of the export volume and the income terms of trade for the period prior to 1930 and for the 1930's is more clearly shown by Chart 3.

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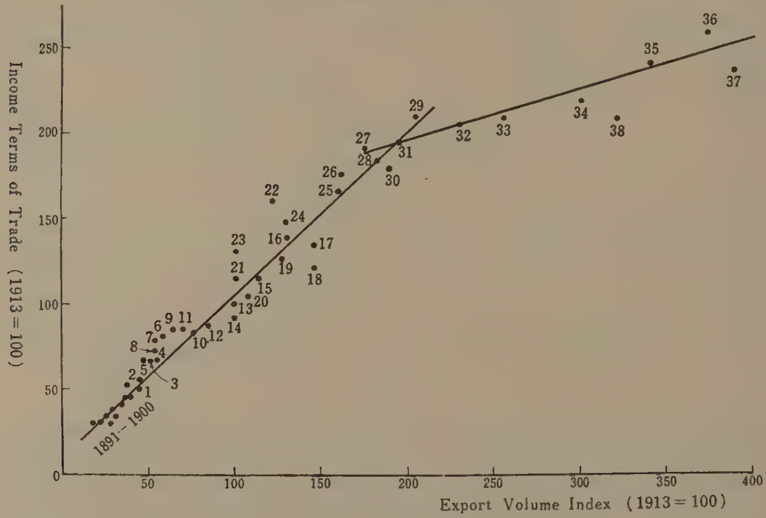
[6] "Honpo Seisan Suryo Shisu," *Shogyo Keizai Ronso*, Vol. 16, No. 3, Nov. 1938, pp. 478–479.

[7] This covers only the trade of Japan Proper with foreign countries, not including Japan's colonies.

Chart 3 Export Volume and Income Terms of Trade



Source: Appendix

It may be safely inferred that manufactures were not driven abroad during a period such as 1905–31 when the volume of exports, which consisted mainly of semi- and finished manufactures, grew in parallel fashion with or at a slower speed than manufacturing output. The export-drive was confined to the period of 1932–37, when exports expanded faster than manufacturing output and the commodity terms of trade deteriorated enormously. The period of 1905–13 was another period of rapid industrial transformation and of deterioration in the terms of trade, but it had many dissimilarities as compared with the 1930's. A further study is needed for the period of 1905–13.

Secondly, Table 5, which is calculated from Hilgerdt's *Industrialization and Foreign Trade*,[8] confirms our above conclusions as far as the comparison of changes in production and exports of manufactures by periods in Japan is concerned.[9]

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[8] League of Nations, *Industrialization and Foreign Trade*, written by Folke Hilgerdt, 1945.

[9] In 1936–38, the manufacturing production increased by 79% relative to 1930, while manufacturing exports increased by 85%.

As compared with more advanced countries, which are our competitors in manufacturing exports, and with the world as a whole, in the first period of 1906–10 / 1911–13, Japanese manufacturing production increased faster than that of foreign countries while Japanese manufacturing exports expanded as rapidly as those of the United States and a little faster than those of the world. In the second period of 1921–25 / 1926–29, Japanese manufacturing production increased a little faster than that of foreign competitors and of the world while the expan-

Table 5 *Production and Trade in Manufactured Articles*

Production

Period		Japan		World		United States		Germany		United Kingdom	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
I	1906–10	64.4	100	79.9	100	78.7	100	80.8	100	83.1	100
	1911–13	93.1	145	94.3	118	91.6	116	97.4	121	93.1	112
II	1921–25	203.3	100	103.2	100	129.3	100	77.7	100	76.4	100
	1926–29	289.8	143	138.9	135	163.6	127	112.2	144	92.6	121
	1930	294.8	145	136.9	133	148.0	114	101.6	131	91.3	120
III	1926–29	289.8	100	138.9	100	163.6	100	112.2	100	92.6	100
	1931–35	365.8	126	128.2	92	117.8	72	90.6	81	92.3	100
	1936–38	528.9	183	185.0	133	166.6	102	138.3	123	121.5	131

Trade (*exports*)

Period		Japan		World		United States		Germany		United Kingdom	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
I	1906–10	65.7	100	77.9	100	65.6	100	73.7	100	82.2	100
	1911–13	88.2	134	95.6	123	90.2	138	93.7	127	96.0	117
II	1921–25	191.2	100	76.6	100	108.7	100	61.2	100	68.4	100
	1926–29	276.5	145	104.3	136	175.7	162	77.5	127	82.7	121
	1930	254.9	133	99.7	130	160.2	147	91.3	149	68.2	100
III	1926–29	276.5	100	104.3	100	175.7	100	77.5	100	82.7	100
	1931–35	284.3	103	75.5	72	95.0	54	71.8	93	50.8	61
	1936–38	471.6	171	92.1	88	154.8	88	84.0	108	62.9	76

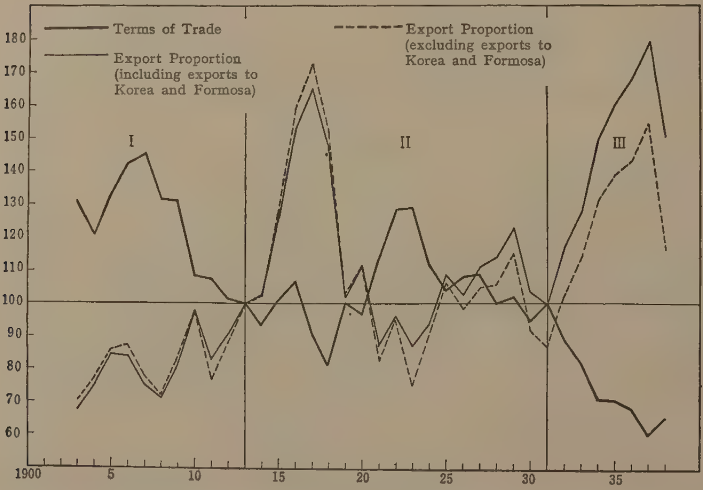
Column (a) is the original index, the base of which is 1913=100.
Column (b) shows each period in a given group as a per cent of the first period in that group.
Source: League of Nations, *Industrialization and Foreign Trade*, 1945, p. 130, p. 157, pp. 162–163.

sion of Japanese manufacturing exports lagged far behind that of the United States. The situation was, however, quite different in the third period of 1926-29 / 1936–38, in which not only manufacturing production increased faster in Japan than in other countries but Japanese manufacturing exports expanded enormously in contrast to other countries' contraction or slow recovery from the world crisis. It may be concluded that only in the third period did Japan engage in an export drive and intrude into competitor's markets.

Thirdly, it is said that the export proportion, i.e. the ratio of exports to national income, is more likely to increase in a period of depression than it is in the immediately preceding period of prosperity and that it is inversely correlated with the terms of trade which are said to deteriorate during depressions.[1] The phenomenon is called 'crisis exporting', in which the deterioration in the terms of trade plays the same role as in the vicious circle mechanism,[2] though the former results in an export drive of a short-run nature and the latter results in that of a secular nature.

Chart 4 shows the Japanese terms of trade index and export proportion index, the latter of which is calculated by first dividing the export volume index by the real national income index, and then taking as 100 the export proportion

Chart 4 Terms of Trade and Export Proportion Index 1903—1938 (1913=100)



Source: Appendix

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[1] See, Werner Schlote, *British Overseas Trade, from 1700 to the 1930's*, translated by W. H. Chaloner and W. O. Henderson, Oxford, 1952, pp. 75–79.

[2] Professor Shinohara stressed the similarity of the role of the terms of trade played in crisis exporting and in his vicious circle mechanism. See, Miyohei Shinohara, "The Economic Development and Foreign Trade of Japan," *Nippon Keizai-no Kozobunseki*, ed. by Ichiro Nakayama, Vol. 2, 1954, p. 108.

thus obtained in 1913 (15.2% when exports to Korea and Formosa are excluded and 17.2% when they are included). The two indices apparently show a fairly good inverse correlation throughout the whole period from 1905 to 1937. Firstly, the export proportion decreased and the terms of trade improved in 1918–23 when the world business cycle was downward and the Japanese economy suffered the great earthquake. During the world economic crisis of 1929 to 1930, both indices decreased, and then the terms of trade improved while the export proportion decreased from 1930 to 1931. Secondly, the export proportion increased and the terms of trade deteriorated when the world economy was prosperous in such periods as 1905–13, 1913–18 (World War I), and 1923–29. Now, the first set of facts is quite contrary to the crisis exporting theory and also to the vicious circle theory. The second set of facts has no connection with the crisis exporting theory, and scarcely supports the vicious circle theory.

Concerning the period during 1932–37, there still remains a question. From the point of view of the short-run business cycle, it was a period of slow recovery of the world economy and of rapid expansion of our economy. However, from the point of view of secular trend, it was a period of secular stagnation of the world economy which might, as the vicious circle theory assumes, necessitate a deterioration in the terms of trade in order to increase the export proportion in Japan. It may be concluded that only in the period of 1932–37 were Japanese exports persistently driven abroad in the face of an unfavorable world economic situation.

Fourthly, it is not enough to analyse only the terms of trade. The components of the terms of trade and the export volume also should be investigated. The indices of these variables are drawn in Chart 5. In period II, 1913–31, there was a fairly regular cyclical pattern of behavior evident in these indices, as Professors Morgan and Paish pointed out[3] with reference to the United Kingdom. Since the price fluctuation in primary commodities was wider than in manufactured goods, in the upward phase of the world business cycle Japan's import prices rose first; the increase of purchasing power among primary goods exporting countries resulted in the increase of Japanese export volume,[4] which was then followed by . rise in our export prices; our terms of trade deteriorated, for the rise of import prices was faster and greater than that of export prices mainly due to the difference of price elasticities. In the downward phase of the world business cycle, import prices fell first at a greater rate than that of the succeeding fall in export prices, and as a consequence the terms of trade became favorable while the volume of export declined or grew at a slower rate than otherwise.

In period I, 1905–13, and in Period III, 1931–37, however, all indices showed not a cyclical pattern but a kind of trend. In period I, the import price index

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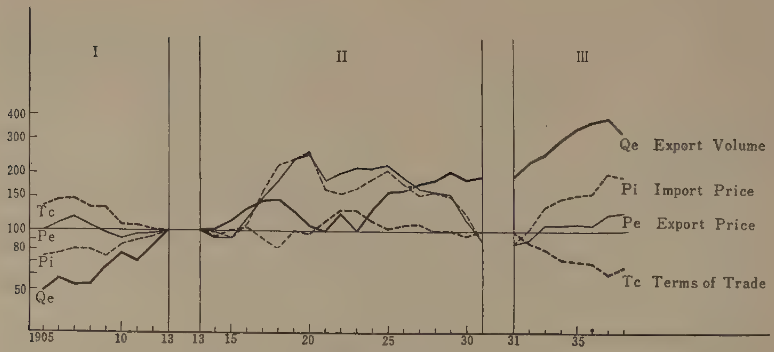
[3] D. J. Morgan and P. W. Paish, "The Purchasing Power of British Exports Further Considered," *Economica*, Nov. 1955, pp. 329–335. See also, R. L. Marris, "The Purchasing Power of British Exports," *Economica*, Feb. 1955, pp. 13–28, and "The Purchasing Power of British Exports—A Rejoinder," *Economica*, Feb. 1956, pp. 67–70.

[4] The decline in the export volume in 1923 was irregular. since it was brought about by the great earthquake in that year.

Chart 5 Indices of Import Price, Export Price, Export Volume and Terms of Trade (1913=100)



Source: Appendix

rose substantially; the volume of exports increased at a rapid rate with the export price index fairly constant; consequently the terms of trade deteriorated enormously. In period III, the trend pattern was about the same as in period I, except for the rising trend of the export price index in the former period. It seems to me, however, that there was some fundamental difference between the two periods, although a thorough analysis has not yet been made of period I. In period I, the world economy was prosperous and expanding rapidly and, therefore, our import prices rose. In period III, the world economy was sluggish and in "Sturm und Drang," and import prices were deliberately pushed up as a result of our drastic exchange depreciation. Other differences will be noted presently. Thus, it may be concluded that only in period III did Japan try deliberately to expand her exports.[5]

Fifthly, according to Professor Tatemoto's calculation[6] there exists a conspicuous difference in income and price elasticities between 1924-29, on the one hand, and 1932–37, on the other hand. The income elasticity abroad for our exports decreased from 1.70 in the first period to 0.90 in the second period, while the price elasticity increased from 0.10 to 0.94, both elasticities being estimated by multiple correlation. The elasticity of substitution of world demand for Japanese and competitor's exports showed a fivefold increase from 0.45 to 2.20. These changes in elasticities tell us that our export price cuts worked effectively for expanding trade in 1932–37, while our exports were influenced predominantly by changes in the world incomes during 1924–29.

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[5] Professor Lockwood seems to be right in stating that "...periods of high incomes in Japan were apt to be periods of high incomes and high prices abroad. A notable exception was the Japanese economic recovery after 1931 in the midst of continuing world depression. Even then the yen prices of imports rose steeply as national income increased, owing to the depreciation of the currency." William W. Lockwood, *op. cit.*, p. 380.

[6] Masahiro Tatemoto and Hiroya Ueno, *Keizai-kozo no Keiryo-keizai-teki Bunseki*, Osaka University, 1957, pp. 105–108.

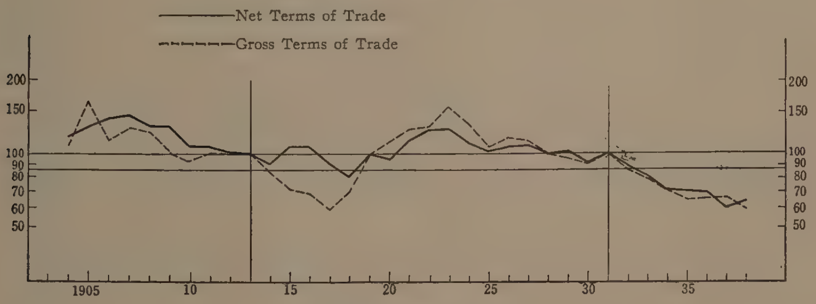
In short, all indices, which have been examined from five points of view, show that only the period of 1932–37 had the unique features of an export drive supported by a huge deterioration in the terms of trade. It may be safely inferred that those unique features were the causes and effects of the vicious circle mechanism which was peculiar to that period. Obviously, in the period of 1913–31, our exports varied not as a result of a deliberate export drive policy, but in accordance with the world business cycles.

IV. *The Balance of Payments*

It may be worth inquiring if a latent tendency toward a recurrent deficit in the balance of payments has really existed, as the vicious circle theorists argued, and, if so, what kind of deliberate policy has taken place in order to overcome the latent deficit. The task is not easy since the ex-post account of the balance of payments is always kept in balance and, in the aggregate, it indicates nothing about latent forces. However, a gold movement, which is apt to be an accommodating factor in the balance of payments, may suggest something important.

The relation between the net and gross terms of trade as shown in Chart 6 gives a good picture of changes in the balance of trade. In the base year, 1913, an import surplus amounted to 15.5% of the total import value. When the gross terms of trade were above a line marking 84.5, our balance of trade incurred an import surplus, and when they were below our balance of trade enjoyed an export surplus. From the chart, it is clear that Japan experienced an export surplus in 1915–18 and in 1932–38, while an import surplus occurred in other periods. A clear co-variation between the two terms of trade is seen, except where large fluctuations of the gross terms of trade took place such as in 1905, the

Chart 6 Net and Gross Terms of Trade (1913=100)



Source: Appendix

year of the Russo-Japanese War, and in 1923, the year of the great earthquake. The co-variation shows, as would be theoretically expected, that a downward change in the gross terms of trade, i.e. an improvement in the balance of trade, tends to pull down the net terms of trade and *vice versa*. It is apparent, therefore, that the net terms of trade did not deteriorate because of the occurrence of an import surplus. Instead, they deteriorated while the balance of trade was improving, particularly in 1905–1914 and 1932–1937. In any case, there is no evidence in these facts of the operation of the vicious circle mechanism.

Table 6 *The Balance of Payments*, 1904—1936

(in million yen)

Period	(1) Balance of Merchandise Trade surplus (+),	(2) Balance of Invisible Trade deficit (—)	(3) Balance of Current Account (1)+(2)	(4) Gold net export (+) net import (—)
I. 1904–1914 Annual Average	—727.4 (— 66.1)	—260.5 (— 23.7)	—987.9 (— 89.8)	+ 78.6 (+ 7.2)
II. 1915–1919 Annual Average	+1,219.2 (+243.8)	+1,843.9 (+368.8)	+3,063.1 (+612.6)	—622.8 (—124.6)
III. 1920–1929 Annual Average	—4,214.9 (—421.5)	+1,896.3 (+189.6)	—2,318.6 (—231.9)	—452.2 (— 45.2)
IV. 1930–1931 Annual Average	—301.1 (—150.5)	+216.6 (+108.3)	— 84.5 (— 42.2)	+674.9 (+337.4)
V. 1932–1936 Annual Average	—237.5 (— 47.5)	+767.3 (+153.5)	+529.8 (+106.0)	+133.4 (+ 26.7)
Total	—4,261.7	+4,463.6	+ 201.9	— 188.1

Period	(5) Changes in Outside Gold net decrease(+) net increase (—)	(6) Payments in Gold (4)+(5) net payment(+) net receipt (—)	(7) Capital Movements net inflow (+) net outflow (—)	(8) Residuals (3)+(6)+(7)
I. 1904–1914 Annual Average	—198.8 (— 18.1)	—120.2 (— 10.9)	+1,370.4 (+124.6)	+262.3 (+ 23.9)
II. 1915–1919 Annual Average	—1,130.5 (—226.1)	—1,753.3 (—350.7)	—1,405.0 (—281.0)	— 95.2 (— 19.1)
III. 1920–1929 Annual Average	+1,088.1 (+108.8)	+635.9 (+ 63.6)	— 9.8 (— 1.0)	—1,692.5 (—169.3)
IV. 1930–1931 Annual Average	+167.3 (+ 83.7)	+842.2 (+421.1)	—380.6 (—190.3)	+377.1 (+188.6)
V. 1932–1936 Annual Average	— 78.7 (— 15.8)	+ 54.7 (+ 10.9)	—945.3 (—189.1)	—360.8 (— 72.2)
Total	—152.6	—340.7	—1,370.3	—1,509.1

Source: *Zaisei Kinyu Tokei Geppo*, ed. by the Ministry of Finance, No. 5, 1950.

Table 6 shows the balance of payments, according to Ministry of Finance estimates which are generally considered among the most reliable.[7] In this table, a shipment of silver is included in merchandise trade. It is assumed that gold shipments in column (4) and changes in outside gold in column (5) consist of payments in gold in column (6). Capital movements in column (7) are badly imperfect estimates and ambiguous. Throughout the whole period, 1904–1936, the import surplus of merchandise trade, 4,261 million yen, was covered by the net receipts of invisible trade, 4,463 million yen, maintaining a favorable balance in the current account. Consequently, regardless of the capital movements, which were really small in amount as compared with total exports and imports, our trade was kept well in balance during the whole period and resulted in a small amount of gold receipts, 340 million yen. The pattern of balancing the payments, however, differs in each sub-period.

In period I, 1904–1914, both merchandise and invisible trade incurred a deficit amounting to about 1,000 million yen, but the deficit was covered with no difficulty by the net inflow of capital, 1,370 million yen, leaving a net receipt of gold of 120 million yen. Following the establishment of the gold standard in 1897, which was made possible by the inflow of the Chinese war indemnity, a good amount of foreign capital flowed in. The Russo-Japanese war expenditure and the post-war industrialization were financed in substantial part by foreign capital amounting to 1,784 million yen[8] in 1904–1914. Thus, it may safely be said that in 1904–1914, because of the enormous inflow of foreign capital, Japan did not actually experience a balance of payments problem even though she engaged in rapid industrialization. Japan did not in this period take any deliberate measures for an export drive, for it is reported that, in 1914, "Japan had two alternatives: either to raise the specie holdings of the Bank of Japan or to adopt deflationist measures whereby to depress commodity prices and so accelerate the export trade... But just when the authorities were on the point of installing this new plan, the World War broke out, changing the financial situation entirely."[9]

In period II, 1915–1919, both merchandise and invisible trade earned enormous foreign exchange, amounting to 3,063 million yen, and consequently there was no worry about the balance of payments pressure. Japan acquired gold in the amount of 1,753 million yen and the remainder was used to pay off old foreign debts and to lend capital abroad in the estimated amounts of 245 and 830 million yen respectively.[1]

In period III, 1920–1929, Japan experienced a huge import surplus, 4,215 million yen, 45% of which was covered by the export surplus of invisible trade, and a net deficit of 2,319 million yen remained to be covered. The Government did not take any positive measures to foster exports but paid a part of the deficit, amounting to 636 million yen, in gold, which was acquired during World War

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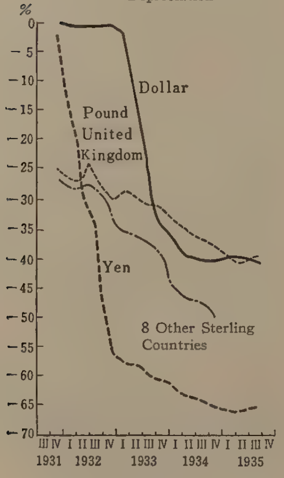
[7] *Zaisei Kinyu Tokei Geppo*, ed. by the Ministry of Finance, No. 5, Jan. 1950.
[8] The Oriental Economist, *The Foreign Trade of Japan, A Statistical Review*, 1935, p. 24.
[9] *The Foreign Trade of Japan*, *ibid.*, p. 24.
[1] *Zaisei Kinyu Tokei Geppo*, *ibid.*, p. 5.

I. A certain amount of capital, 990 million yen,[2] was borrowed from abroad. No satisfactory explanation seems to be available concerning why column (7) of Table 6 shows 9.8 million yen of outflow of capital in spite of a large amount of foreign borrowing. The total of the gold payment and the foreign borrowing is still short of the deficit in the current account. It seems to me that a large part of the shortage was covered by selling our foreign investment carried during World War I and a small part of it, particularly the deficit in 1929, was deferred to 1930–31.

On January 11, 1930, in spite of the fact that the World Crisis had already started, Japan lifted, at the old par, the gold ban, which had existed since World War I. Then, a substantial amount, 842 million yen, of gold was sent abroad in a short period, and consequently the gold ban was restored on December 13, 1931. A part of the drain of gold was accounted for by the deferred payments of the previous year, but a large part of it was due to a rapid capital flight. Thus, it may be concluded that, during 1920–1931 thanks to the gold reserve accumulated during World War I, Japan was able to meet trade deficits without resorting to any deliberate measures for an export drive.

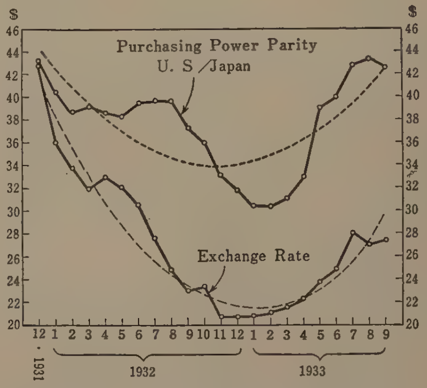
In period V, 1932–36, positive measures for a deliberate export drive started when the exchange rate was allowed to fluctuate freely at the end of 1931 and, internally, a reflationist policy was adopted. As Chart 7 shows, the deprecia-

Chart 7 Competitive Exchange Depreciation



S. E. Harris, *Exchange Depreciation*, Cambridge, Mass., 1936, p. 422.

Chart 8 Exchange Rate and Purchasing Power Parity between U. S. and Japan Immediately after Abandonment of the Gold Standard in Japan in Dec. 1931



Ginjiro Shibata, "Fluctuations of the Exchange Rate and Japan's International Balance of Payments," *Third Annual Report of the Japan Statistical Society*, 1934, p. 40.

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[2] *Ibid.*, p. 5.

tion of the yen was far larger and faster than the depreciation of major foreign currencies, and, as Chart 8 shows, it went in advance of and at a greater rate than the fall in the purchasing power parity.[3] Needless to say, these changes stimulated greatly the expansion of our export volume, though the increase of export volume failed to create an export value surplus because of the great deterioration in the terms of trade. The current account, however, had a surplus of 530 million yen. This surplus was not enough to cover our foreign investment amounting to 945 million yen as shown in Table 6. According to other estimates, our investments in Manchuria amounted to 1,388 million yen[4] for the period 1932–36. Thus, we had a current account surplus, but we were required to ship gold.

In short, the first structural transformation in 1904–14 was made easy in its finance by the inflow of foreign capital and did not necessitate an export drive and the vicious circle. Only in the second structural transformation period of 1932 to 1936, did Japan experience a balance of payments difficulty not because of the pressure of an ordinary import surplus but in order to realise huge investments in Manchuria and to import a large amount of war materials. In the inter-transformation period, the balance of payments deficits in 1920–31 were covered by gold and foreign exchange earned during World War I and neither an export drive nor the vicious circle mechanism occurred.

V. *Gains from Trade*

It has been made clear that the terms of trade in Japan sharply deteriorated in the two periods of industrial transformation, 1905–13 and 1932–37, but that they remained constant with respect to trend in the inter-transformation period. Moreover, there were so many substantial differences between the two transformation periods that the vicious circle generated by an export drive may be said to have occurred only in 1932–37. In addition, it is expected that there may exist some differences in the gains from trade during 1932–37 as compared with the preceding period. Particularly, in order to judge if the vicious circle did occur or not, it is necessary to investigate the variations in the gains from trade which occurred as a result of different movements in labor productivity and the commodity terms of trade. We shall not be concerned here with wider effects of foreign trade on technological, cultural, social and political changes in Japan.[5] Instead, the analysis will be confined to evaluating gains from trade by means of several kinds of terms of trade. This method of evaluation is not adequate and encounters difficulties in the period of transformation arising from changes in the composition of industry and trade. It is hoped that a better technique of evaluation will be invented in the future.

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[3] See, Ginjiro Shibata, "Fluctuations of the Exchange Rate and Japan's International Balance of Payments," *The Third Annual Report of the Japan Statistical Society*, 1934, pp. 35–46.

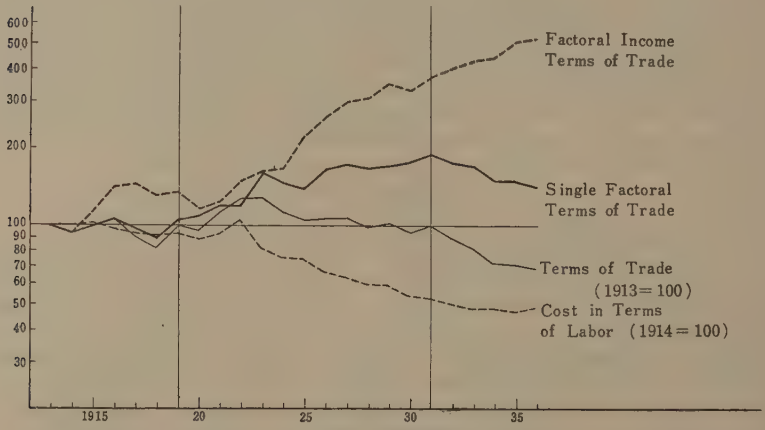
[4] *Zaisei Kinyu Tokei Geppo*, *ibid.*, p. 6.

[5] See, for example, Lockwood, *op. cit.*, pp. 318–346.

The net commodity terms of trade shown in Chart 1 and Chart 9 may not be a good index of the gains from trade except for short periods when other things such as the industrial structure, the trade pattern, the efficiency of production, etc. remain unchanged, although their changes have impacts upon and stimulate the re-orientation of the economy and trade as a whole.

The income terms of trade shown in Chart 2 are a better index of the gains from trade. The compound rate of growth of the income terms of trade is 5.6% per year in 1905–13, 7.1% in 1921–29, and 5.7% in 1931–36. This means that the contribution of foreign trade to economic development in terms of the capacity to import (i.e., the purchasing power of exports) increased more rapidly in the period of balanced growth, 1921–29, than in the two periods of transformation, 1905–13 and 1931–37.

Chart 9 Indices for Exports



Source: Appendix

When technical advances and the reduction in the unit cost of exports in labor and capital are rapid and great, the commodity terms of trade do not represent correctly the real gains from trade. If the commodity terms of trade deteriorate less than the reduction in the unit cost of exports, some surplus still grows, leaving room for raising the real wage level and / or the capitalist's profit. This kind of deterioration in the commodity terms of trade should be strictly distinguished from another kind of deterioration due to a true export drive which is necessitated by overproduction accompanying no technical advance. Thus the so-called single factoral terms of trade may be a better index than the commodity terms of trade.

As shown in Chart 9, the unit cost of manufactured goods in terms of labor input[6] remained unchanged in 1914–22, but from 1922 to 1931 it decreased rapidly to 50% relative to 1914, and in 1932–36 it remained again unchanged. The difference of movement between the cost index and the commodity terms of trade may be considered to represent the changes of surplus in our export industry. The surplus increased very much in 1922–31 since the commodity terms of trade declined far less than unit cost, while the surplus decreased rapidly in 1932–36 since the commodity terms of trade deteriorated enormously with unit labor cost fairly constant. The different tendencies noted above are reflected in the movement of the single factoral terms of trade. The factoral income terms of trade[7] shown in Chart 9 are the single factoral terms of trade modified by the index of export volume and may reflect a compound contribution of trade to the real wage level and to the volume of employment in export industries. They show how greatly the gains from trade increased in 1922–29, and that the rate of increase in the gains from trade was slowed down in 1932–36 despite the enormous increase in the export volume. Indices in Chart 9 also show the fact that only in 1932–36 was there an export drive under conditions of stable unit cost. Such a situation would tend to set in motion the vicious circle mechanism.

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[6] Unfortunately there is no reliable series for years prior to 1914.

An investigation of similar indices for cotton fabrics and silk as representative export industries may help to clarify in which major industry and in what period the vicious circle occurred. The commodity terms of trade for the cotton fabrics are the ratio of the export price of cotton fabrics to the import price of raw cotton, and those for silk are the ratio of the export price of silk to the general price of wholesale commodities in Japan (no imported material is needed in the silk industry). By comparing Charts 10 and 11, it may be observed that the cotton fabrics exports were more successful than silk exports both in the expansion period, 1923–29, and in the export drive period, 1932–37, although both exports suffered equally severe set-backs in the world depression. Concerning the cotton fabrics exports, in 1923–31 the labor cost per unit was reduced to about a third, resulting in a huge increase of surplus, the rapid improvement of the single factoral terms of trade, and a big expansion of export volume. In 1932–37, the single factoral terms of trade became unfavorable because of the deterioration in the commodity terms of trade in the face of a fairly constant unit labor cost. The export drive of cotton fabrics was successful in the sense that the deterioration in the commodity terms of trade stimulated a rapid increase in export volume. Concerning the silk exports, however, in 1923–31 the commodity terms of trade deteriorated at the same rate as the reduction in cost (about 30%), leaving the trend of the single factoral terms of trade unchanged and providing no room for raising the real income level of farmers (earnings from work in the silk industry constitute an important part of farm income). Again in 1932–37, the commodity terms of trade deteriorated further at the same rate as the cost reduction, but the deterioration in the commodity terms of trade and the export drive did not bring about any expansion of the export volume because of the growing competition of synthetic fibers. Thus the vicious circle was more serious in the case of the silk industry and farmers than in the case of the cotton fabric industry and its laborers.

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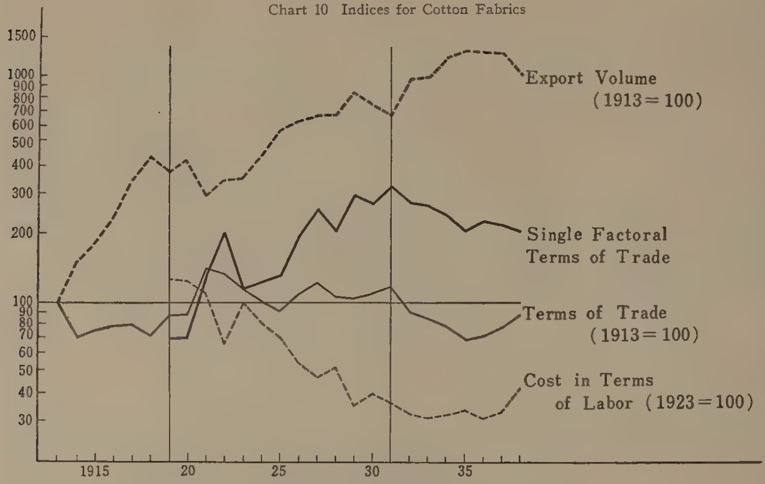
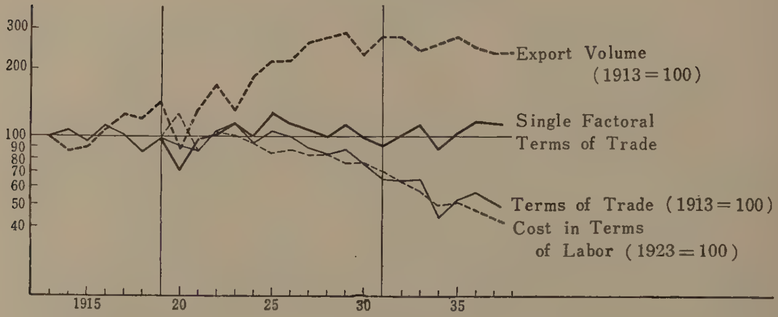
[7] See, Note 5 on page 145 above.

Chart 10 Indices for Cotton Fabrics



Source: Appendix

Chart 11 Indices for Silk

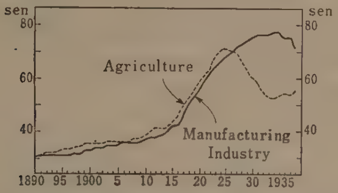


Source: Appendix

If similar indices for some of the new industries which were growing in 1932–37 were available, their comparison with the cotton fabric and silk industries, which were already stagnating, would be interesting. Unfortunately, reliable data are not available.

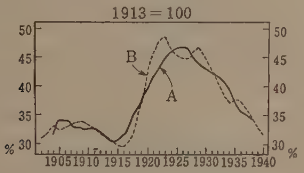
What were the results in each period of economic development as far as labor income was concerned? Although a further study is needed, Charts 12 and 13 may suggest something important. As shown in Chart 12, the real wage-income in manufacturing industry rose rapidly from 1914 to 1931 and then leveled off, while that in agriculture rose in parallel fashion up to 1925 and then fell. The gap between agriculture and manufacturing industry is partly explained by the difficulty in the silk industry. It is clear that the real wage-income increased

Chart 12 Real Wage-Income at 1913 Prices



Mataji Umemura, "Trend of Wage in Agriculture and Manufacturing Industry," *Nihon-no Keizai-to Nogyo*, ed. by Seiichi Tohata and Kazushi Ohkawa, 1956, p. 198.

Chart 13 Labor's Share in Manufacturing Industry
Series A...9 year moving average
Series B...5 year moving average



Mataji Umemura, "Labor's Share in Manufacturing Industry," *Chingin Kihon Chosa*, ed. by Ichiro Nakayama, 1956, p. 133.

steadily in the period of balanced growth, 1914–31, while it increased slowly or decreased in the periods of industrial transformation and export drive, 1905–13 and 1932–37. These different features are more clearly seen in the trend of labor share shown in Chart 13. It may be concluded that only in the period 1932–37 did a rapid transformation of the economy and a deliberate export drive combine to give rise to the vicious circle and a serious pressure upon labor's real consumption level.

VI. *Concluding Remarks*

I have tried to prove the incorrectness of the hasty generalization of the stereotyped theory that the drive for foreign markets was the motor force of Japanese industrialization over the long run, resulting in a vicious circle between the deterioration in the terms of trade and cheap labor. The vicious circle was confined to 1932–37, the period of war preparation, rapid transformation to heavy industry, and an investment rush to Manchuria. In view of the powerful political and military factors behind the deterioration of the terms of trade and the export drive, it is even possible that the vicious circle played a relatively minor role in the situation. Prior to the 1930's, Japan experienced prosperous decades of balanced growth of industries and trade and steadily raised its real wage level. Since World War II, it seems to me, the Japanese economy and trade have recovered and are growing according to the pattern of the pre-1930's, a pattern which, it is hoped, will not revert to that of the 1930's.

Appendix: Statistical Data

Table A (1913=100)

	(1) Price of Exports	(2) Volume of Exports	(3) Price of Imports	(4) Volume of Imports	(5) Terms of Trade $\frac{(1)}{(3)}\times 100$	(6) Income Terms of Trade $(5)\times(2)\div 100$	(7) Production of Manufactured Goods	(8) Export Proportion $\frac{\text{Volume of Exports}}{\text{RealNational Income}}$		(9) Cost of Mfg. Goods in Terms of Lafor Input
								(8a) Excluding Exports to Korea and Formosa	(8b) Including Exports to Korea and Formosa	
1873	64.2	5.3	61.9	6.3	103.7	5.5	1.3	%		
1874	56.4	5.5	51.6	6.2	109.3	6.0	1.6			
1875	52.7	5.5	55.4	7.4	95.1	5.2	1.6			
1876	58.7	7.5	47.8	6.9	122.8	9.2	1.7			
1877	46.8	7.9	54.3	7.0	86.2	6.9	2.0			
1878	47.1	8.7	48.9	9.2	96.3	9.4	2.5			
1879	53.6	8.4	44.1	10.2	121.5	10.2	3.0			
1880	57.7	7.8	44.6	11.2	129.4	10.1	3.4			
1881	56.3	8.7	43.9	9.8	128.2	11.2	3.6			
1882	53.1	11.3	42.1	9.5	126.1	14.2	3.6			
1883	47.9	11.9	40.6	9.6	118.0	14.0	3.6			
1884	50.5	10.7	41.8	9.8	120.8	12.9	3.2			
1885	51.8	11.4	39.6	10.1	130.8	14.9	3.4			
1886	54.6	14.1	40.4	10.9	135.1	19.0	4.7			
1887	56.8	14.6	41.2	14.8	137.9	20.1	5.8			
1888	51.5	20.2	47.6	18.9	108.2	21.9	7.2			
1889	56.6	19.6	49.2	18.5	115.0	22.5	7.7			
1890	59.3	15.0	47.1	23.8	125.9	18.9	8.5			
1891	54.8	23.0	44.6	19.3	122.9	28.3	8.0			
1892	62.6	23.0	44.5	22.0	140.7	32.4	9.5			
1893	68.9	20.6	50.2	24.1	137.3	28.3	10.1			
1894	71.0	25.2	61.5	26.2	115.4	29.1	13.2			
1895	79.0	27.2	60.6	29.2	130.4	35.5	14.9			
1896	76.9	24.2	61.2	38.4	125.7	30.4	17.3			
1897	80.9	31.9	66.9	45.0	120.9	38.6	17.8			
1898	86.8	30.2	65.9	57.7	131.7	39.8	20.4			
1899	90.9	37.4	67.3	44.9	135.1	50.5	23.5			
1900	101.3	31.9	81.4	48.4	124.4	39.7	25.7			
1901	90.1	44.3	80.9	43.4	111.4	49.4	28.6			
1902	90.7	45.0	73.9	50.5	122.7	55.2	32.1			
1903	94.3	49.4	71.7	56.6	131.3	64.9	34.2	10.7	11.6	
1904	95.7	53.2	78.7	60.2	121.6	64.7	40.5	11.8	12.9	

1905	99.4	48.7	75.1	81.6	132.4	64.5	49.5	13.1	14.6	
1906	109.4	57.4	76.9	66.8	142.3	81.7	52.0	13.3	14.5	
1907	118.4	53.7	81.6	75.5	145.1	77.9	60.1	11.7	13.0	
1908	105.2	53.6	79.8	66.2	131.8	70.6	60.0	11.0	12.3	
1909	98.1	64.6	74.7	67.1	131.3	84.8	62.4	12.7	14.1	
1910	92.2	76.8	84.6	73.6	108.7	83.5	72.4	14.9	16.8	(1914=100)
1911	96.5	71.1	89.9	73.5	107.3	76.3	81.0	11.7	14.3	
1912	96.1	85.3	94.3	87.6	101.9	86.9	82.9	13.4	15.6	
1913	100.0	100.0	100.0	100.0	100.0	100.0	100.0	15.2	17.2	
1914	93.1	100.5	99.5	83.8	93.6	94.1	101.5	15.6	17.7	100.0
1915	92.4	113.4	91.8	81.7	100.7	114.2	105.0	19.4	21.7	99.0
1916	117.6	130.5	110.4	90.7	106.5	139.0	128.1	24.2	26.3	102.1
1917	147.6	146.5	161.0	89.0	91.8	134.5	148.1	26.2	28.4	108.1
1918	181.0	146.5	221.1	105.2	81.9	120.0	166.4	23.2	25.4	109.3
1919	238.9	127.4	238.9	126.3	100.0	127.4	179.5	15.6	17.6	105.3
1920	250.1	108.0	256.7	123.9	97.4	105.2	182.9	17.0	19.3	111.2
1921	184.1	101.5	162.7	130.6	113.2	114.9	180.6	12.6	15.1	105.9
1922	201.5	123.6	156.6	162.1	128.7	159.1	210.6	14.5	16.7	94.1
1923	213.8	101.8	165.3	159.8	129.3	131.6	226.3	11.5	13.4	123.8
1924	211.1	131.0	187.7	175.9	112.5	147.4	244.8	13.9	16.2	131.8
1925	219.1	158.8	209.9	174.2	104.4	165.8	251.6	16.2	18.8	134.0
1926	189.8	161.3	175.2	189.8	108.3	174.7	289.4	15.0	17.7	149.3
1927	167.8	174.7	154.0	200.5	109.0	190.4	305.8	16.0	19.1	156.1
1928	159.9	184.2	159.2	190.1	100.4	184.9	334.9	16.1	19.6	167.5
1929	156.7	204.8	153.2	199.2	102.3	209.5	371.0	17.5	21.2	166.9
1930	116.2	188.9	121.8	175.1	95.4	180.2	348.4	14.0	17.8	185.6
1931	87.9	194.9	87.7	194.3	100.2	195.3	347.1	13.3	17.1	189.0
1932	91.5	230.2	102.8	191.8	89.0	204.9	381.0	15.7	20.1	197.6
1933	109.2	254.4	132.8	198.8	82.2	209.1	437.4	17.4	22.0	208.2
1934	107.7	300.9	148.2	212.2	72.7	218.8	484.6	20.0	25.7	204.9
1935	109.4	341.3	153.3	222.2	71.4	243.7	522.4	21.1	27.6	204.9
1936	107.9	373.0	156.0	244.1	69.2	258.1	557.4	21.7	28.9	
1937	122.2	388.1	200.9	259.5	60.8	236.0		23.5	31.0	
1938	125.0	321.2	193.7	189.5	64.5	207.2		17.7	25.9	

(1)—(4) The series of the Oriental Economist, *The Foreign Trade of Japan, A Statistical Review*, 1935, is connected in 1928 to the series of the Yokohama Specie Bank, *Weekly Circular*. These cover only the foreign trade of Japan Proper with foreign countries, excluding trade with the colonies.

(7) "Honpo Seisan Suryo Shisu," *Shogyo Keizai Ronso*, Vol. 16, No. 3, Nov. 1938, pp. 478–479.

(8) National income and its deflator are Ohkawa series. *The Growth Rate of the Japanese Economy*, ed. by Kazushi Ohkawa, Tokyo, 1957, p. 247, p. 130.

(9) Miyohei Shinohara, *Shotoku-Bunpai to Chingin-kozo*, Tokyo, 1955, p. 11.

Table B (1913=100)

	Indices for Cotton Fabrics					Indices for Silk				
	(1) Export Price of Cotton Fabrics	(2) Export Volume of Cotton Fabrics	(3) Import Price of Raw Cotton	(4) Terms of Trade for Cotton Fabrics $\frac{(1)}{(3)}\times 100$	(5) Cost of Cotton Fabrics in Terms of Labor Input	(6) Export Price of Silk	(7) Export Volume of Silk	(8) General Prices	(9) Terms of Trade for Silk $\frac{(6)}{(8)}\times 100$	(10) Cost of Silk in Terms of Labor Input
1913	100.0	100.0	100.0	100.0	(1923 =100)	100.0	100.0	100.0	100.0	(1923 =100)
1914	69.8	152.9	101.2	69.0		101.4	84.4	95.4	106.3	
1915	63.7	184.2	85.5	74.5		91.8	88.1	96.6	95.0	
1916	73.9	235.2	94.7	78.0		131.7	107.8	116.7	112.9	
1917	106.4	346.3	134.7	79.0		148.9	125.7	146.9	101.4	
1918	155.5	438.2	216.4	71.9		164.0	119.7	192.5	85.2	
1919	211.3	376.5	241.9	87.4	127.3	233.7	142.0	235.7	99.2	101.4
1920	231.2	422.4	263.9	87.6	125.0	234.8	86.6	259.1	90.6	126.6
1921	203.2	295.7	143.5	141.6	109.6	170.5	130.1	200.3	85.1	87.1
1922	187.8	342.4	140.9	133.3	63.8	209.4	169.9	195.7	107.0	103.7
1923	193.3	348.2	166.4	116.2	100.0	231.0	130.1	198.3	116.5	100.0
1924	216.3	439.9	213.6	101.3	81.7	197.4	184.0	206.3	95.7	93.8
1925	222.9	567.2	242.1	92.1	70.3	215.5	216.7	201.5	106.9	84.5
1926	194.5	624.9	178.8	108.8	54.5	178.1	218.6	178.8	99.6	87.0
1927	170.5	654.6	140.0	121.8	46.9	152.5	258.4	169.8	89.8	82.4
1928	170.2	663.3	161.7	105.3	51.9	143.1	272.5	170.8	83.8	83.4
1929	159.2	830.7	152.4	104.5	35.5	145.3	285.9	166.0	87.5	76.9
1930	119.2	731.5	108.5	109.9	40.3	95.0	233.5	124.8	76.1	76.7
1931	89.9	657.6	76.3	117.8	36.5	68.4	276.2	105.5	64.8	70.5
1932	90.8	945.8	100.7	90.2	32.8	74.8	271.7	117.0	63.9	62.9
1933	117.2	972.9	138.9	84.4	31.6	86.6	240.1	134.0	64.6	56.8
1934	122.1	1,199.7	154.8	78.9	32.1	60.4	251.7	136.8	44.2	49.4
1935	116.4	1,268.4	166.8	69.8	33.5	74.9	273.4	140.2	53.4	51.1
1936	114.1	1,261.1	160.4	71.1	31.0	83.6	248.8	146.1	57.2	47.8
1937	138.6	1,230.4	177.4	78.1	32.7	92.1	234.0	177.5	51.9	44.2
1938	118.6	1,014.6	133.7	88.7	42.5	81.7	236.0			40.7

(1), (2), (3), (6), (7) The series of the Oriental Economist, *The Foreign Trade of Japan, A Statistical Review*, 1935, is connected in 1930 to the series of Kobe Shodai Shogyo Kenkyujo, *Juyo Keizai Tokei*, No. 11, 1938.
(5), (10) *Nihon Keizai no Bunseki*, ed. by Shigeto Tsuru and Kazushi Ohkawa, Vol. 2, 1955, p. 353.
(8) *Nihon no Keizai to Nogyo*, ed. by Seiichi Tohata and Kazushi Ohkawa, Vol. 1, 1956, pp. 190–191. The base of the original series is 1893–97=100.

THE EMPLOYMENT PROBLEM IN JAPAN IN NEXT TEN YEARS

By Tokijiro Minoguchi

Professor of Population Problem

I

When we treat the employment problem in next ten years in Japan we must estimate how will develop in that period our population, especially our labour-force population that is the population which has ability and will to work.

Recent Japanese population statistics show that while the birth rate had tended to fall very rapidly from 34–35 per thousand in 1920–1925 to 19 per thousand on the one hand, the death rate also at the same time had tended to fall very rapidly from 21–23 per thousand in 1920–1925 to 8.5 per thousand in 1949 on the other hand, and that as a result of it not only the natural increase rate had remained on the same high level, but the absolute number of yearly natural increase had raised very significantly from 0.6–0.7 million in 1920–1925 to 1.18 million in 1950–1955 because the size of total population on which the rate of yearly natural increase is calculated had grown meanwhile by 39 million that is 50 per cent.

However such movement in both birth and death rate will have to bring certain effects on the future development in population in Japan, as the past experiences in polulation movement in more developed countries such as Great Britain, Germany and United States of America have hitherto shown. Since falling birth and death rate implies lesser birth and longer living, when both birth and death rate cotinue to fall the proportion of older aged population will be more and more larger with their fall and as a result of it the age composition of population will shift from that in which the number of population decreases with the rise in age, as seen in the former times of high rate of both birth and death to that in which the number of population increases with the rise in age, so that the proportion of younger aged population will continue to fall and in place of it at first the proportion of adult, so-called "productive age"—15–60 years old—population and then that of old aged population will continue to grow till as a result of such growth the natural increase of population will slow down and then stop, because such increasing proportion of old aged population will cause further decline in birth rate in consequence of lesser ability to give birth and at the same time will bring increase in death rate.

According to the estimate of the Japanese future population made by the Institute for Population Problem Research the absolute number of yearly population increase in Japan will tend to decrease progressively: in 1953–1955 the population will increase in yearly average by one million and from 87 million to 89 million: in 1955–1965 it will increase in yearly average by 0.8 million and from 89 million to 97 million: in 1955–1975 it will increase in yearly average by 0.6 million and from 97 million to 103 million: in 1975–1985 it will increase in 0.6 million and from 103 million to 108 million: in 1985–1995 it will cease to increase: and thenthforth it will tend to decrease.

However this fact does not imply that the increase in labour-force population which has ability and will to work will slow down in the next ten years. For as above explained, when both birth and death rate continue to fall, at least in its earlier stage in place of the proportion of younger population that of adult, so-called "productive age" population will grow and in consequence of it the latter population will grow in larger rate as the total population. According to the above mentioned estimate by the Institute for Population Problem Research, the "porductive age" population will increase in 1953–1955 in yearly average by 0.98 million and from 50.4 million to 52.2 million, in 1955–1960 in yearly average by 1.08 million and from 52.2 million to 57.6 million, in 1960–1965 in yearly average by 1.22 million and from 5.76 million to 63.7 million. Only from this time the increase in "productive age" population also will slow down. Its yearly average increase amounts to in 1965–1975 0.61 million, in 1975–1985 only 0.18 million. This fact implies that the increase in labour-force population in Japan in yearly average amounts to 0.58 million in 1955–1960 and 0.65 million in 1960–1965 against 0.53 million in 1954, and that in these next ten years the labour-force population will grow most rapidly.

II

Now the question which we must answer here in treating the employment problem in next ten years in Japan is how this in next ten years rapidly growing labour-force population will be employed. To answer this question it is necessary to investigate how hitherto in Japan the rapidly grown labour-force population has been employed.

According to the Japanese population censuses, during 68 years from 1872 to 1940 while the total population had increased from 35 million to 73 million and the occupied population also had grown from 17 million to 32.5 million, the population occupied in agriculture had remained almost stationary (14.5 million in 1872, 14.4 million in 1940) on the one hand, the population occupied in manufacture and mining had increased from 0.83 million to 8.72 million and the population occupied in so-called "service industries" including commerce, transport, liberal profession and public servises had increased from 0.17 million to 4.48 million on the other hand. And as a result of it, while the proportion of the population occupied in agriculture had lowered from 83.7 per cent to 44.3 per cent, that of the population occupied in manufacture and mining had risen from 4.8

per cent to 27.0 per cent and that of the population occupied in" service industries" had also risen from 10.2 per cent to 28.8 per cent. It follows from this that, of the total occupied population which had increased during 1872–1940, 7.9 million that is 51 per cent had increased in manufacture and mining and 4.3 million that is 49.0 per cent had increased in "service industries."

It may be said that it is a cause and a result of the increase in productivity of labour caused by the development in division of labour and the rise in the level of real income per head that when the occupied population had increased with the increase in the total population, the industrial composition of the occupied population had in this way shifted from that in which the population occupied in agriculture constituted a greater part of the occupied population to that in which the proportion of the population occupied in manufacture and mining and then that of the population occupied in "service industries" is larger.

It is a well known fact that division of labour which is a fundamental priciple of modern production economy increases productivity of labour. However in order to raise productivity of labour by means of realizing the advantage of division of labour, it is necessary that demand for any paticular product is not only massive and uiform but also stable and lasting. Because when the demand for that product is not massive and uniform any specialized man or machine, apparatus and plant etc. will not be used gainfully. Then because when the demand for that product is fluctuating and not stable, any specialized man or machine, apparatus and plant etc. will not be used all the time to the full. Lastly because when the demand for the product, even if not only massive and uiform, but stable, not lasting and for short time, any man or machine, apparatus and plant etc. will be unused during its life time. In these cases not the advantage but the disadvantage of division of labour will be realized.

Now in order to raise productivity of labour and level of real income per head by means of realizing the advantage of division of labour which depends on development in such massive, uniform, stable and lasting demand, it is necessary, as Adam Smith indicated, that the extent of market is large. The larger the market, the more the advantage of division of labour is realized, and by means of it the more the output and real income per head increases. Needless to say, it is evident that it is necessary to develop transport, commerce and finance to enlagre market. The fact that of the industrial population the proportion of the population occupied in transport, commerce, and finance had grown with the increase in industrial population in Japan may be said in this sense to be a cause for the rise in productivity of labour and in real income per head.

However, on the other hand, the above mentioned shift in the industrial composition of population may be said to be a effect of the rise in productivity of labour and in real income per head. It is a well known fact that in consequence of less elasticity in the demand for agricultural porduct, as when the real income increases it does not increase in proportion to it, so when the real income decreases it does not decrease in proportion to it. As a result of this fact, when the real income increases, in place of demand for agricultural product, demand for manufactured goods, such as clothes, furniture, automobile and house etc. and then demand for services of education, recreation, journey and sanitation etc. increases. Therefore when productivity of labour and real income per head increases, while the proportion of the population occupied in agriculture will tend to decrease relatively on the one hand, the proportion of the population occupied in manufacture and services of commerce, finance, transport and liberal profession will tend to increase relatively.

Now in regard to the relation between the development in market and the shift in the industrial composition of population in Japan, during 1872–1920 with the development in railway and other internal transport facilities and internal commerce, the national market had been gradually unified and the advantage of national division of labour had been realized more and more. And as a result of such development, while the proportion of the population occupied in agriculture had decreased from 83.7 per cent to 53.6 per cent, that of the population occupied in manufacture and mining had increased from 4.8 per cent to 20.7 per cent, and that of the population occupied in "service industries" which includes commerce, finance, transport and liberal profession etc. also had increased from 10.1 per cent to 25.8 per cent. But it is till about this year that in Japan the productivity of labour and the real income per head had increased almost only by means of realizing the advantage of disivion of labour depended on unification of national market. Thenceforth we may say that by means of realizing the advantage of international division of labour depended on the development in foreign trade the productivity of labour and the real income per head had further increased and in consequence of it till 1940, while the proportion of the population occupied in agriculture had declined to 44.0 per cent, that of the population occupied in manufacture and mining had risen to 26.1 per cent and that of the population occupied in "service industries" also had risen to 29.9 per cent. This argument had been proved by the fact that in times immediately after the last War when our foreign trade had almost stopped, the real income per head and the industrial composition of population in Japan had falled back to those in 1920 and that thenceforth with recovery of our foreign trade the real income per head and the industrial composition of population in Japan had recovered.

If we compare the result of the population census made in 1947, the year immediately after the last War with the result of that made in 1940, so we find that during these years not only the population occupied in manufacture and mining had shown almost no change (8.69 million in 1947 against 8.73 million in 1940) but the population occupied in "service industries" had decreased from 9.45 million to 7.65 million that is by 1.80 million, the population occupied in agriculture had increased from 14.3 million to 17.65 million that is by 3.35 million, and as a result of such abnormal change, while the proportion of the population occupied in agriculture had risen to 53.4 per cent, that of the population occupied in manufacture and mining had fallen to 22.3 per cent and that of the population occuied in "service industries" had also fallen to 24.3 per cent. This industrial composition of population in 1947 is nearly the same as that in 1920.

However the industrial composition of population in 1940 had been recovered already till 1955. According to the results of population censuses, during 1947–1955, while the population occupied in agriculture had decreased to 16.16 million that is by 1.49 million, the population occupied in manufacture and mining had increased to 9.32 million that is by 0.63 million and the population occupied in "service industries" had also increased to 13.76 million that is by 6.11 million, and as a result of it, while the proportion of the population occupied in agriculture had fallen to 40.1 per cent, that of the population occupied in manufacture and mining had risen to 23.8 per cent and that of the population occupied in "service industries" had also risen to 35.2 per cent.

III

It follows from these above mentioned facts that during next ten years in Japan in what industries will be employed the labour-force population which will grow most significantly in such times will mainly depend on how large will be the development in our foreign trade.

When we try to guess how large will be the development in our foreign trade during next ten years, we must firstly give consideration to the constant tendency of gold as a international money to concentrate on United States of America. Because as a result of the fact that in consequence of continuous surplus of exports of United States of America since the beginning of the Twentieth Century the gold holdings of this country had amounted to 25 billion dollar that is 90 per cent of the total gold holdings in world in 1941, the multilateral trade which had been ruling in times before the last War in world had become impossible and the bilateral trade had become ruling in times after the last War. It is an obvious fact that the amount of foreign trade in case of bilateral trade is significantly smaller than that in case of maltilateral trade. Because in case of bilateral trade, unlike in case of maltilateral trade, any foreign exchange which any export country had received for its exports from any import country can not be used for any its imports from any other country than that import country, so that exports and imports must be balanced between any two trading countries. Needless to say, the International Monetary Fund and the International Bank for Recovery and Development had been established with the purpose to compensate such defect of bielateral trade. But at least till today these organisations have failed to attain this purpose satisfactorily.

The second, but more important fact to which we must give consideration when we try to guess how large will be the development in our foreign trade during next ten years is the lack of our export market. One of the most important causes for this lack of our export market is the loss of our export market in Communist China. According to statistics, our exports destined for the territory of the present communist China in 1939 amounted to about 700 million dollar that is about 40 per cent of the total amount of our exports in the same year.

But this fact does not necessarily imply that, as many men in Japan believe, as soon as our trade with the communist China has become free our exports destined for this country will amount to the same sum as that in 1939. As the fact that not only the amount of our exports destined for the territory of the present communist China had begun to increase since 1931, but the districts for which our exports were destined in 1939 were almost only Manchuria and north China, especially the former proves, our exports destined for these districts in such big amount in 1939 was evidently the result of our big investment of capital made in Manchuria and partly in north China and of the consumption in big amount made by many Japanese in these districts. Therefore so far as the present communist China does not invest capital at least in the same amount, we can not expect our exports destinid for the communist China in same amount as in 1939. This argument is proved by the fact that our exports destined for the communist China which have been bargained between Japan and this country in every recent year have amounted to only 84 million dollar that is 12 per cent of the amount of our exports destined for the territory of the present communist China in 1939.

Needless to say, this fact does not necessarily imply that we can not expect our exports destined for the communist China in considerable amount in the future also. Oriental countries including the communist China which had been most important markets for our exports in times before the last War have not sufficient purchasing power to import our exports in considerable amount, because in these countries in cosequence of less prevalence of division of labour their productivity of labour and their income per head is very low. Nevertheless it is also a doubtless fact that in almost all these countries there has been already the endeavour to develop their productive power on the socalled mercantilistic thought, as seen in earlier times of industrialisation in almost all developed countries in the world. If such endeavour in these countries had brought forth sufficiently much effect, we could expect sufficiently large markets for our exports in these countries, because in such case there would be such rise in their productivity of labour and their real income per head as seen in the past times in all developed countries including Japan. However since such endeavour to develop their productive power naturally could bring forth sufficiently much effect only after a lapse of considerably long times as proved by the experiences in all developed countries, at least during next ten years when, as stated, the labour-force population will increase most significantly in Japan we can not expect sufficiently large markets for our exports in these countries.

Moreover the development in productive power in these countries does not necessarliy imply the increase in the amount of our exports destined for these countries. Since the development in productive power requires the sufficient supply of machine, instrument, apparatus, car, automobile and chemical fertilizer etc. but as a rule the industries which produce these productive goods develop in considerable degree only after the industrialisation in that country has reached to a fairly high stage, these countries which now stand on the earliest stage of industrialisation must import these productive goods at the sacrifice of consumption goods, of which the major part of our exports hitherto has consisted. This fact means for Japan the decrease in the amount of the export of our consumption goods on the one hand, and the severe competition in these markets with Germany, Great Britain and other countries which are superior to Japan in these productive goods industries on the other hand.

LABOR'S RELATIVE SHARE IN THE JAPANESE MANUFACTURING INDUSTRY SINCE 1900*

By Mataji Umemura

Assis. Professor, The Institute of Economic Research

I. *Introduction*

This paper deals with the distribution of income in the Japanese manufacturing industry with special reference to its long-run changes. We carry out the analysis throughout in terms of labor's relative share, which in its essence is equivalent to the concept of the rate of surplus value or the rate of exploitation in Marxian economics. It is only a matter of preference whether we adopt the concept of labor's relative share or that of the rate of surplus value.[1]

In this field, we have already the eminent empirical studies of M. Kalecki, J. T. Dunlop, E. H. Phelps Brown and M. Shinohara.[2] Through their efforts, we have a fairly accurate knowledge of its short-run changes, but as far as its long-run changes are concerned we are still uncertain. D. Ricardo and K. Marx tried to make heroic speculations about the long-run tendency of labor's relative share by using rather crude tools, but we can find no distinct tendency of the relative share moving upward or downward through the use of existing statistcis.[3] The factors affecting and the mechanism determining its long-run changes are so many and so complicated that Kalecki says "No *a priori* statement is therefore possible as to the long-run trend of the relative share of wages in income."[4] Therefore, the accumulation of observations about the long-run changes of the distribu-

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* The author is heavily indebted to many people for important suggestions and criticisms. These include Professors K. Ohkawa, M. Shinohara and Mr. H. Rosovsky. However, the conclusions, opinions, and other statements in this article are those of the author and are not necessarily those of individuals who have been helpful.

[1] The numerical expression of the relationship of labor's relative share to the rate of surplus value can be shown as follows:

$$r=\frac{1}{1+s} \quad \text{or} \quad s=\frac{1-r}{r}$$

where r and s stand for labor's relative share and the rate of surplus value respectively. From the above equation, it is clear that they always move in opposite directions. See also J. Robinson, *An Essay on Marxian Economics*, 1949.

[2] M. Kalecki, *Essays in the Theory of Economic Fluctuation*, 1939, Chap. 1 and *Theory of Economic Dynamics*, 1954, Part 1. J. T. Dunlop, *Wage Determination under Trade Unions*, 1950, Chap. 8. E. H. Phelps Brown and P. E. Hart, "The Share of Wages in National Income," *Economic Journal*, June 1952, pp. 253–277. M. Shinohara, "Kogyo ni okeru Bunpairitsu" (Labor's Relative Share in Manufacturing Industry), *Shotoku Bunpai to Chingin Kozo* (*Income Distribution and Wage Structure*), 1954, pp. 36–71.

[3] D. Ricardo, *On the Principles of Political Economy and Taxation, The Works and Correspondence of David Ricardo*, Volume 1, ed. by P. Sraffa and M. H. Dobb, 1953.
K. Marx, *Das Kapital*, ed. by M. E. L. Institute, 1932-34.

[4] M. Kalecki, *Theory of Economic Dynamics*, p. 31.

tion of income is badly needed. This paper hopes to make some contributions to this field.

The Japanese economy started from the primitive stage of economic development at the early Meiji era, and then carried through a highly remarkable industrialization, which has been characterised by the surprising growth of the national products and remarkable changes of her industrial structure. According to the available estimates, during the perio1d of 1878-1942 the growth rates of total and per capita real national income were 3–4 per cent and 2–2.5 respectively and the proportion of the net output of primary industry to the total national income steadily declined from 65 per cent to 17 per cent.[5]

Using the terms of Harrod's fundamental equation of economic growth $Gc=s$, the high value of growth rate of the Japanese economy can be attributed to the low value of the capital coefficient and/or the high value of the savings ratio. The available estimates of these, though they are only tentative in their nature, show us that the values of the capital coefficient and of the savings ratio of the Japanese economy appear to be higher than those of U. S. A. and U. K.[6]

Therefore, the next problem to be discussed is how the Japanese economy realise its high savings ratio in spite of the relatively low level of income. We will discuss briefly some important factors stimulating savings below. The foreign bond issue raised in London during the 1870's amounted to 16.5 million yen, which is estimated to be about 3 per cent of national income at that period. In addition to this, the 364 million yen worth of reparations received from China was roughly equal to one and half year's national income at that period. It can not be denied that they made great contributions to the economic development of Japan.

The opinion that the propensity to save of the Japanese throughout all the social classes is peculiarly high, has been cogently insisted upon by many economists.[7] In this regard, the mental attitude of the Japanese to praise very much the virtue of thrift which prevailed and still prevails cannot be neglected. And it is also well recognized that the heavy land tax was the most important source of Government investment which paved the way towards economic development.[8] This must be appraised as remarkable characteristics of the Japanese economy, compared to the present situations of the South-east Asian countries which suffer from the lack of stable sources of revenue. Furthermore, we must mention the secular inflationary tendency in Japan, which seemed to be favorable to savings through the redistribution of income. During the period of 1878–1913, the price level rose approximately by 80 per cent, compared to the steady or declining tendency of the price level in the Western countries.[9]

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[5] K. Ohkawa and Associates, *The Growth Rate of the Japanese Economy since 1878*, 1957, Part I, Chap. 2.

[6] Ohkawa, *ibid.*, Part III, Chap. 2.

[7] C. Clark, *The Conditions of Economic Progress*, 2nd Ed., 1951, p. 526.

[8] B. F. Johnston, "Agricultural Productivity and Economic Development in Japan," *Journal of Political Economy*, Dec. 1951.

[9] Ohkawa, *ibid.*, Part II, Chap. 4.

However, it may be reasonable to attribute the high rate of savings to the large share of profit in national income, because profit itself is the main-spring of the internal accumulation of capitalistic enterprise. The focus of this paper is directed to this point.

However, in spite of our original intention, we deal with the labor's relative share in the manufacturing industry instead of the distribution of income in the national economy as a whole. The reasons of this procedure are of two kinds. One is the world wide empirical fact that the manufacturing industry is always ahead of the remaining parts of the economy by playing its role as a prime mover of economic development, and is considered to be the representative of the capitalistic sector of the economy. Another reason is rather complicated, and we will leave the discussion of it to the next section.

II. *Some Problems in the Application of the Concept of Labor's Relative Share*

It is well recognized that the economic theory generally presupposes a pure capitalistic economy as its object of analysis but this presupposition can not be expected to be always valid in the real world. Of course, this does not mean that the usefullness of the economic theory might be reduced by this inevitable limitation. On the contrary, thanks to this simplifying assumption the economic theory serves as a useful tool of our reasoning. However, when we intend to apply the economic theory to any real situation, we are obliged to modify or sometimes reformulate the theory by using alternative assumptions. The concept of labor's relative share is not an exception to this general rule.

In a pure capitalistic economy such as described in the text of economics, the entrepreneur and the laborer are the two distinct social classes and they are not competing with each other. Therefore, the profit and the wage are also the two distinct categories of social income. The actual situation in highly developed countries such as U. K. and U. S. A. may be regarded as approximating the preconditions of theory. But in the semi-developed countries such as Japan, in which the non-capitalistic sector of the economy still remains important even at the present day, it is far from the real fact.

For instance, in Japan, according to the labor force statistics, the proportion of salaried employees and wage earners to the total labor force is only about 40 per cent, compared to higher figures ranging from 70 to 90 per cent in West Germany, Canada, U.S.A. and U.K. The remaining part of the labor force consists of working proprietors and unpaid family workers, whose income is a mixture of wages, property income and profit, and can be called a mixed income. Therefore, in order to estimate the labor's relative share, the imputation of their wage bill under some reasonable assumption is inevitable.

In this connection, C. Clark's method of segregating their mixed income

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[10] C. Clark, *The Conditions of Economic Progress*, 2nd Ed., 1951, pp. 521–526.

seems to be suggestive indeed.[10] He assumed that the working proprietor and the unpaid family worker are fully competitive with the salaried employees and wage earners in the labor market. He believed that the competition is so effective that there is no room to allow for any wage differentials among workers of equal quality. Under this assumption, the working proprietor and the unpaid family worker should earn exactly the same wage as the salaried employees and the wage earners after considering the sex and age elements which are regarded as main factors affecting the quality of labor. From these reasoning, Clark proceeded to compare the average wages and salaries of the employed workers with the average net output per head of total gainfully occupied after giving an adequate adjustment for the sex and age composition of them.

However, the application of Clark's method to the Japanese economy requires a further consideration, because of the wide wage differentials which prevail throughout among the workers of the same sex and age groups.[11] This consideration makes analysis too complicated to be managed. Therefore, we decided finally to abondon the analysis of labor's relative share in the national economy as a whole and concentrate our attention to that of the manufacturing industry only.

III. *Measurement*

In this section, we explain our procedure of estimating labor's relative share in manufacturing industry since 1900. However, even in the manufacturing there are a large number of handicraft, which are non-capitalistic in their nature and must be excluded from our scope of analysis. But it must be noted that the demarcation line adopted in this paper is rather arbitrary and depends upon the convenience of the statistical data used.

The data utilized are those from the Census of Manufacture which has been compiled every five years since 1909 and annually since 1920 by the Ministry of Commerce and Industry and its successors. The design of the Census has been changed several times, so that the complete comparability of the data can not be expected over the whole period of our analysis. The Census was designed to cover only the factories employing regularly five or more production workers untill 1939. Since 1939, the coverage of the Census has been broadened to include all the factories irrespective of scale. Other establishments belonging to manufacturing industry, such as head offices, branch offices, etc. are out of the Census throughout the entire period. This paper concerns only factories employing five or more production workers to insure the continuity of the statistical series. Some minor exceptions of this general rule will be mentioned later.

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[11] K. Ohkawa carried out a comprehensive theoretical analysis of the labor's relative share in the economy having the non-capitalistic sector as its important part and found some deficiency in Clark's method mentioned above. See K. Ohkawa, "Kokumin Shotoku ni okeru Chingin Shotoku no Chii" (The Share of Wage in National Income), cited in *Chingin Kihon Chosa* (*The Analysis of Wages*), 1956, edited by I. Nakayama, (in Japanese) pp. 80–91.

M. Shinohara estimated labor's relative share in the manufacturing industry for the period of 1929–42 on the basis of the Census of Manufacture and analyzed its changes mainly from the short-run point of view.[12] We used his estimate with a minor modification, as far as it exists. His estimate of the total wage and salary bill does not include the payment for the indirect manual laborer, which is estimated to be 2.7–4.9 per cent of the total wage bill of the production worker.[13] At this point, our figures differ from Shinohara's.

Then, our main task at present is to estimate the pre–1928 figures. The estimate of net output is available from *The Growth Rate of the Japanese Economy since 1878*, and its main defect seems to be that the estimation of the net income ratio fails to reflect adequately the possible effects of relative price changes during business cycles.[14] The procedure of estimation of the total wage and salary bill adopted in this paper is as follows:

(1) We estimate the daily wage of the production worker by sex by using the data of the Census of Manufacture and the Statistical Yearbook of the Ministry of Agriculture and Commerce.

(2) We assume that the daily wage of the indirect manual laborer is 75 per cent of that of the production worker in each sex group on the basis of scattered information.

(3) We assume the annual working days to number 317.

(4) We estimate the numbers of the production workers and the indirect manual laborers by sex from the data mentioned in (1).

(5) We can obtain the estimate of the total wage bill of the production workers and the indirect manual laborers by using the figures obtained in (1), (2), (3), and (4).

(6) As for the total salary bill of the clerical and technical staffs, we follow Shinohara's procedure completely and assume that it amounts to 20 per cent of the total wage bill of the production workers.

Some reflections as to the direction of possible errors stemming from our assumptions may be necessary. As for the estimate of net output, it seems to be under estimated in the prosperous period, especially during World War I. And as for the estimate of wages and salaries, it seems to be under estimated for the early period. Therefore, our estimate of labor's relative share is over estimated for the period during World War I and immediately thereafter, and is under estimated for the early period under survey.

Since 1950 the boundary line of the Census of Manufacturing has been shifted to the factory having four or more persons engaged. And sales value instead of gross value produced has been surveyed since 1950. So that a strict comparison between pre– and post–1950 figures is not possible.

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[12] M. Shinohara, *ibid.*

[13] The method of estimation of the wage bill of the indirect manual laborer is almost equal to that for the pre–1928 period discussed below.

[14] For details of the estimation, see *The Growth Rate of the Japanese Economy since 1878*, Part II, Chap. 2.

IV. *The Long-run Changes*

The figures thus far obtained are converted into per capita employed in terms of 1913 prices by using the employment data already estimated and the price index of non-agricultural products.[15] And in order to eliminate the short-run fluctuations of the series, they are arranged in five and nine years moving averages, the latter of which is exclusively used in this paper.

From Figure 1, we can divide the whole period into three sub-periods. The first period ended around 1914, and labor's relative share showed a slightly declining tendency but was fairly stable over the whole period. This period may be characterised by the establishment of the foundation of the Japanese capitalistic economy through the victorious conclusion of the 1894–95 War. For instance, the gold standard of the Japanese currency had been established in 1897 and many cotton spinning factories entered into operation during this period. However, in the latter part of this period the growth rate of net products of the secondary industry recorded its minimum value of 2.9 per cent.[16]

Table 1 Labor's Relative Share, 1902–40

	5 Year Moving Average			9 Year Moving Average		
	Net Output per head	Wage & Salary per head	Labor's Relative Share	Net Output per head	Wage & Salary per head	Labor's Relative Share
	Yen in 1913 prices		%	Yen in 1913 prices		%
1902	382	118	30.9	—	—	—
03	364	116	31.9	—	—	—
04	341	113	33.1	362	114	31.5
1905	341	110	32.3	339	115	33.9
06	334	110	32.9	342	116	33.9
07	335	112	33.4	351	116	33.0
08	344	116	33.7	359	118	32.9
09	358	121	33.8	368	120	32.6
1910	377	125	33.2	374	123	32.9
11	393	128	32.6	387	126	32.6
12	407	131	32.2	397	127	32.0
13	422	132	31.3	406	126	31.0
14	424	129	30.4	416	126	30.3
1915	419	125	29.8	425	130	30.6
16	421	123	29.2	424	134	31.6
17	436	130	29.8	421	143	34.0
18	424	135	31.8	424	153	36.1
19	420	154	36.7	430	162	37.7

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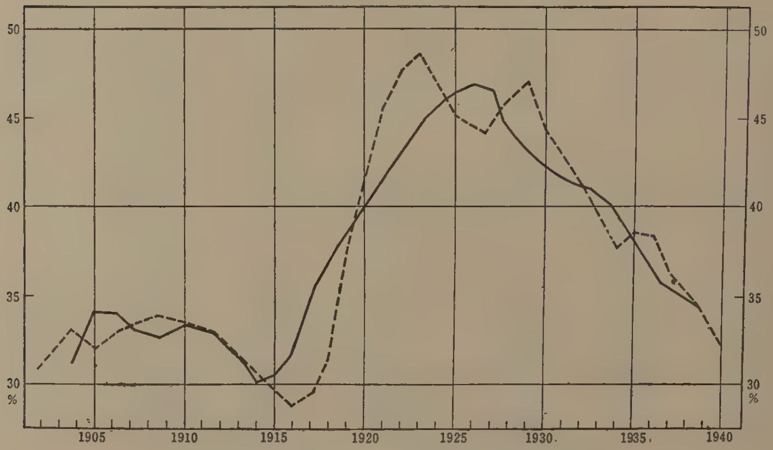
[15] K. Ohkawa and Associates, *ibid.* Part II, Chap. 4.
[16] K. Ohkawa and Associates, *ibid.* Part I, Chap. 2.

1920	424	176	41.5	432	172	39.8
21	432	196	45.4	442	185	41.9
22	435	207	47.6	462	201	43.5
23	458	222	48.5	482	217	45.0
24	492	230	46.7	500	230	46.0
1925	526	239	45.4	519	242	46.6
26	561	251	44.7	545	255	46.8
27	581	260	44.8	575	267	46.4
28	604	279	46.2	610	273	44.8
29	627	295	47.0	638	278	43.6
1930	663	297	44.8	661	283	42.8
31	683	294	43.0	680	287	42.2
32	714	296	41.5	694	289	41.6
33	736	288	39.1	693	284	41.0
34	741	278	37.5	711	283	39.8
1935	710	271	38.2	732	275	37.6
36	712	269	37.8	741	265	35.8
37	731	264	36.1	749	264	35.2
38	736	256	34.8	749	259	34.6
39	762	252	33.1	—	—	—
1940	783	248	31.7	—	—	—

Figure 1 Labor's Relative Share, 1902–40



Remark: Solid Line.........9 Year Moving Average
Broken Line......5 Year Moving Average

The second period covers the following 13 years, and the labor's relative share showed a remarkably rapid increase, i.e., it increased by about 57 per cent from the low level of 30 per cent in 1914 to the high level of 47 per cent in 1926. During the former part of this period, the Japanese economy enjoyed a never previously experienced prosperity owing to World War I and started the shift of industrial structure from the consumer's goods industry to the producer's goods industry. After the collapse of the war boom, the Japanese economy entered into highly unstable situations. The disarmament and the Tokyo Earthquake might have some responsibility for them.

The third period was characterised by the great depression and the prolonged war economy. Labor's relative share declined sharply from the high level of 45 per cent to the same low level as that in the first period mentioned above. The significance of this marked declining tendency has been exaggerated by some economists as an important index showing the maturity of the monopolistic capitalism.

Although we fully admit the insufficiency of our estimates, it seems to be reasonable to draw the conclusion that the labor's relative share in the Japanese manufacturing industry shows a remarkably long cycle which is distinct from the business cycle.

Why does it manifest the cyclical fluctuation? What its main causes are? We will deal with these questions below. From the purely theoretical point of view, we can generally point out several factors affecting the distribution of income, among which the rate of capital accumulation, the rate of increase of labor supply, the types of technical innovation, and the degree of monopoly in both entrepreneur and labor sectors are the most important. And the mechanics through which the distribution of income is affected by them has already been made fairly clear. However, when we intend to measure the magnitude of their changes and appraise their possible effects upon the distribution of income by using statistical data, we certainly encounter the so called data bottleneck without exception. Therefore, we are obliged to restrict our analysis to the relationship between the observable variables, i.e., the volume of employment and labor's relative share in the manufacturing industry. In spite of the insufficiency of our analysis, we can get some interesting conclusions.

In Figures 2, 3, and 4, we compare the labor's relative share with the rate of

Table 2 Number of Persons Employed, 1902–40

	5 Year Moving Average		9 Year Moving Average	
	Number of Persons Employed	Rate of Employment Increase	Number of Persons Employed	Rate of Employment Increase
	thousand	%	thousand	%
1902	561	—	—	—
03	603	7.5	—	—
04	653	8.3	647	—
1905	690	5.7	694	7.3
06	734	6.0	734	5.8
07	783	6.7	771	5.0
08	817	4.3	820	6.4
09	855	4.5	866	5.6

1910	900	5.3	909	5.0
11	954	6.0	952	4.7
12	990	3.8	1,011	6.2
13	1,045	5.6	1,097	8.5
14	1,123	7.4	1,193	8.8
1915	1,233	9.8	1,287	7.9
16	1,372	11.3	1,371	6.5
17	1,499	9.3	1,460	6.5
18	1,611	7.5	1,544	5.8
19	1,708	7.0	1,620	4.9
1920	1,759	3.0	1,695	4.6
21	1,759	0	1,752	3.4
22	1,778	1.0	1,791	2.2
23	1,809	1.8	1,809	1.0
24	1,828	1.1	1,839	1.7
1925	1,850	1.2	1,879	2.2
26	1,893	2.3	1,886	0.4
27	1,943	2.7	1,889	0.2
28	1,950	0.3	1,906	0.9
29	1,935	− 0.8	1,939	1.7
1930	1,934	0	2,000	3.1
31	1,959	2.3	2,079	4.0
32	2,026	3.4	2,183	5.0
33	2,175	7.3	2,325	6.5
34	2,380	9.4	2,495	7.3
1935	2,646	11.1	2,771	11.1
36	2,944	11.2	3,065	10.6
37	3,336	13.2	3,352	9.4
38	3,709	11.1	3,645	8.7
39	4,038	8.8	—	—
1940	4,334	7.3	—	—

Figure 2 Labor's Relative Share and Rate of Employment Increase (1)

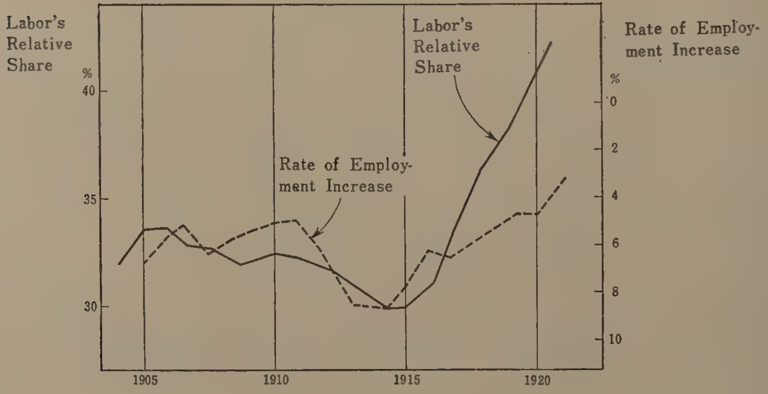


Figure 3 Labor's Relative Share and Rate of Employment Increase (2)

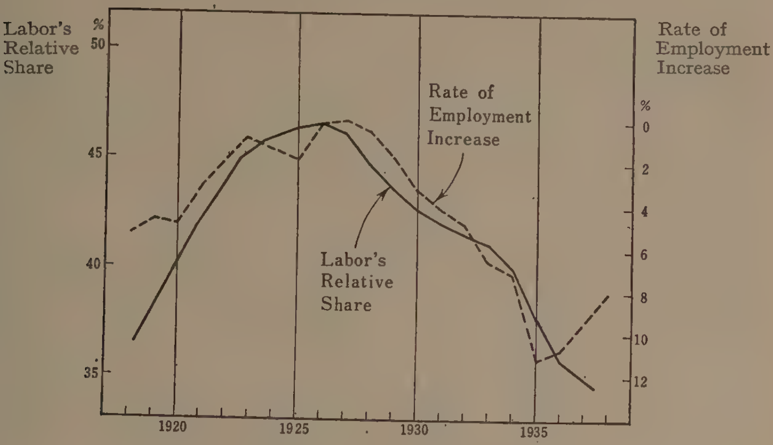
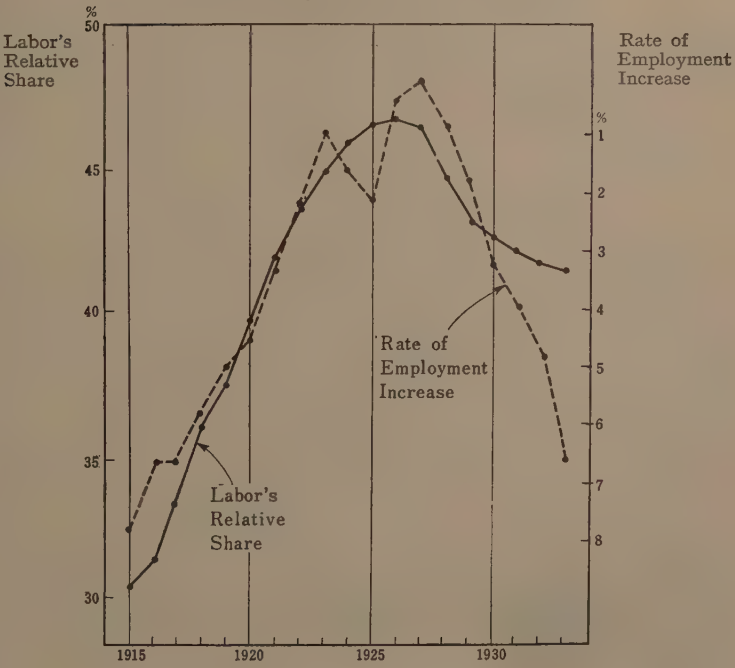


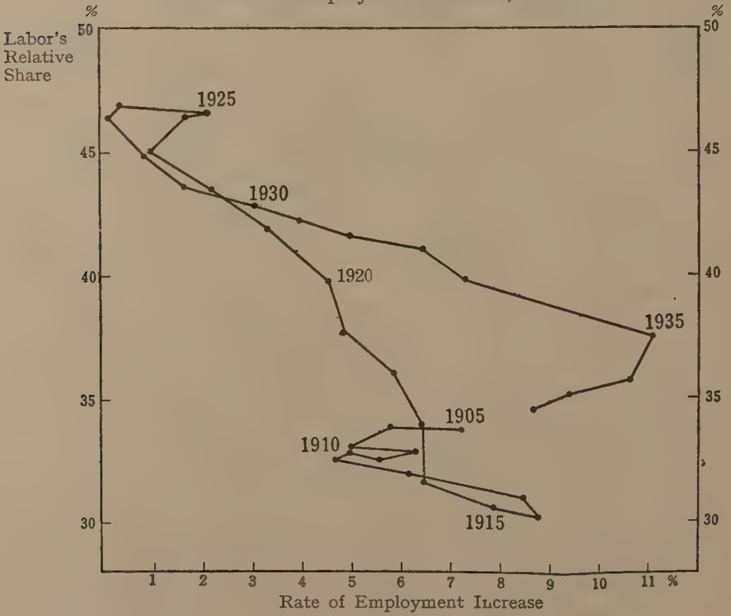
Figure 4 Labor's Relative Share and Rate of Employment Increase (3)



increase of employment. In these figures the labor's relative share is drawn in solid lines, and the rate of employment increase is shown as broken lines and is scaled inversely for the convenience of observation. Therefore, a rise of the solid line means a rise of the labor's relative share but a rise of the broken line means a decrease of the rate of increase of employment, and vice versa. It is clear that for the years before 1916 in Figure 2, for the years of 1915–23 in Figure 4, and for the period after 1923 in Figure 3, the labor's relative share is very closely and inversely correlated with the rate of employment increase. A similar inverse correlation has already been pointed out by M. Shinohara for the period after 1929.[17] However, according to our findings, the inverse relationship between the labor's relative share and the rate of employment increase existed through the whole period.

In addition to these findings, the changes of the relative position of these two lines in these three figures suggest to us that the relationship itself changed at least three times over the period of about 40 years. In order to make it clear, we draw Figure 5, the vertical and horizontal scales of which are the labor's relative share and the rate of employment increase respectively. Our suppositions mentioned above are confirmed by the S-shaped movement of the locus of coordinates in Figure 5. When we again divide the whole period into three sub-periods of

Figure 5 Relationship between Labor's Relative Share and Rate of Employment Increase, 1905–38



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[17] M. Shinohara, *ibid.*

1905–16, 1917–25, and 1926–35, and treat these three periods separately, we can fully explain the changes of labor's relative share during every sub-period by the changes of rate of increase of employment. But it is also clear that we can not explain the changes of direction of the regression line in Figure 5 from one sub-period to another exclusively through the changes of the rate of employment increase. This is to be expected because we entirely neglect the rate of capital accumulation, the types of technical innovation, the changes of industrial structure, and the changes of monopolistic powers. It is regrettable that the data now available do not permit us to enter into further analysis of these important problems.

Here we turn our topic and enter into the observation of the changes of labor's relative share in the post World War II periods. Strictly speaking, the post-war figures can not be directly compared to the pre-war figures because of the alteration of the method compiling the Census of Manufacture already mentioned above. Although we tried to maintain the comparability of the series as far as possible, some discontinuity still remains unadjusted. The data of added value and total wage and salary bill are directly available from the Census of Manufacture since 1948. By assuming the proportion of depreciation and some miscellaneous expenses to the total sales value to be 5 and 4 per cent respectively, we can estimate the net output series comparable to the pre-war figures. The figures thus far obtained are summarised in Table 3 below.

Table 3 Labor's Relative Share, 1948–54 (%)

1948	58.0*	1952	63.1
1949	73.0*	1953	56.5
1950	65.0	1954	54.8
1951	57.2		

Remark: The figures marked * are not comparable to the figures since 1950. For the reason, see text.

The most remarkable characteristics of the labor's relative share in the post-war period may be its unprecedented high level, never experienced in the pre-war years. However, in order to arrive at its normal value in the post-war period, it seems to be reasonable to exclude the figures of 1948 and 1949 from our considerations, because at that period the Japanese economy was still in the midst of inflation and is subjected to the price and distribution controls. In addition to this, the reliability of the statistical data for these two years is somewhat questionable. The five year average of labor's relative share from 1950 to 1954 is 59.3 per cent, compared to the highest level of 48.5 per cent in the pre-war periods (see Table 1, column 3).

We can easily point out several factors as the main causes, for instance, the remarkable growth of trade unions, the decline of monopolistic power of employers, the relative improvement of the peasants' level of living and so on. However, we can not evaluate separately the magnitude of each of these effects upon the distribution of income owing to the lack of data.

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